Zener Diode Silicon Epitaxial Planar

XCUZ series

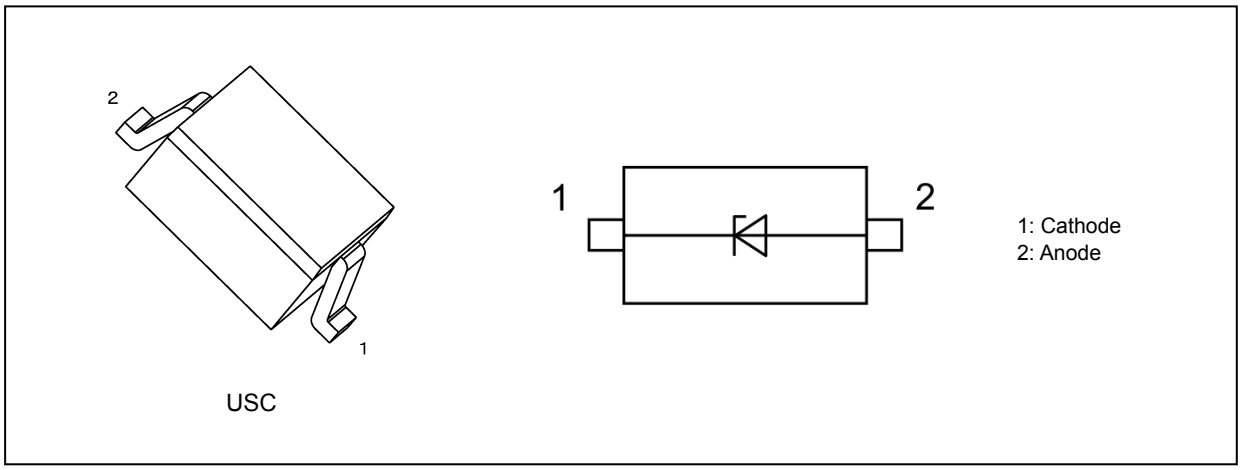
1. Applications

(1) Automotive
(2) Voltage surge protection

2. Features

(1) AEC-Q101 qualified
(2) Small package
(3) The typical voltage of VZ is accorded to E24 series.

3. Packaging and Internal Circuit



4. Absolute Maximum Ratings 1 (Note) (Unless otherwise specified, T_a = 25 °C)

Characteristics	Symbol	Note	Rating	Unit
Power dissipation	P_D	(Note 1)	200	mW
		(Note 2)	600	
Junction temperature	T_j		150	°C
Storage temperature	T_{stg}		-55 to 150	

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note 1: Mounted on a glass epoxy circuit board of 20 mm × 20 mm, pad dimensions of 16 mm^2

Note 2: Mounted on a glass epoxy circuit board of 25.4 mm × 25.4 mm × 1.6 mm, Cu pad: 645 mm^2

Start of commercial production
2023-06

5. Absolute Maximum Ratings 2 (Note) (Unless otherwise specified, T_a = 25 °C)

Type No.	Electrostatic discharge voltage IEC61000-4-2 (Contact, Air) V_{ESD}(kV) (Note 1)	Electrostatic discharge voltage ISO10605 (Cotact, Air) V_{ESD}(kV) (Note 2)	Peak pulse power P_{PK}(W) (Note 3)	Peak pulse current I_{PP}(A) (Note 3)
XCUZ5V6	±30	±30	155	12.0
XCUZ6V2	±30	±30	175	11.0
XCUZ6V8	±30	±30	180	10.0
XCUZ7V5	±30	±30	190	9.5
XCUZ8V2	±30	±30	200	8.5
XCUZ9V1	±30	±30	200	8.0
XCUZ10V	±30	±30	200	7.5
XCUZ11V	±30	±30	200	7.25
XCUZ12V	±30	±30	200	7.0
XCUZ13V	±30	±30	200	6.5
XCUZ15V	±30	±30	200	5.6
XCUZ16V	±30	±30	200	5.5
XCUZ18V	±30	±30	200	5.1
XCUZ20V	±30	±30	200	5.0
XCUZ22V	±30	±30	200	4.75
XCUZ24V	±30	±30	200	4.5
XCUZ27V	±20	±30	200	4.1
XCUZ30V	±20	±30	200	4.0
XCUZ33V	±17	±25	200	3.5
XCUZ36V	±12	±20	200	3.0

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note1: according to IEC61000-4-2(C = 150 pF / R = 330 Ω)
Note2: according to ISO10605(C = 330 pF / R = 2 kΩ)
Note3: according to IEC61000-4-5(tp = 8 / 20 μs)

6. Electrical Characteristics (Unless otherwise specified, T_a = 25 °C)

	Zener Voltage V_Z (V)				Dinamic Impedance Z_Z (Ω)		Dynamic Resistance R_{DYN} (Ω) (Note 1)	Clamp Voltage V_C (V) (Note 1) (Note 2)	Total Capacit-ance C_t (pF) (Note 3)	Reverse Current I_R (μA)	
Type No.	Min	Typ.	Max	Test Current I_Z (mA)	Max	Test Current I_Z (mA)	Typ.	Typ.	Typ.	Max	Test Voltage V_R (V)
XCUZ5V6	5.3	5.6	6.0	5	30	5	0.16	9.0	125	1	2.5
XCUZ6V2	5.8	6.2	6.6	5	30	5	0.21	10.0	105	1	3.0
XCUZ6V8	6.4	6.8	7.2	5	30	5	0.27	13.0	88	0.5	3.5
XCUZ7V5	7.0	7.5	7.9	5	30	5	0.32	14.0	78	0.5	4.0
XCUZ8V2	7.7	8.2	8.7	5	30	5	0.37	16.5	67	0.1	5.0
XCUZ9V1	8.5	9.1	9.6	5	30	5	0.44	17.0	62	0.1	6.0
XCUZ10V	9.4	10.0	10.6	5	30	5	0.52	19.0	60	0.1	7.0
XCUZ11V	10.4	11.0	11.6	5	30	5	0.60	24.0	48	0.1	8.0
XCUZ12V	11.4	12.0	12.6	5	30	5	0.70	26.0	44	0.1	9.0
XCUZ13V	12.4	13.0	14.1	5	30	5	0.80	27.0	42	0.1	10.0
XCUZ15V	13.8	15.0	15.6	5	30	5	0.60	24.0	36	0.1	11.0
XCUZ16V	15.3	16.0	17.1	5	35	5	0.50	27.0	35	0.1	12.0
XCUZ18V	16.8	18.0	19.1	5	45	5	0.40	28.5	31	0.1	13.0
XCUZ20V	18.8	20.0	21.2	5	70	5	0.35	30.5	29	0.1	15.0
XCUZ22V	20.8	22.0	23.3	5	70	5	0.40	32.0	27	0.1	17.0
XCUZ24V	22.8	24.0	25.6	5	70	5	0.60	36.5	26	0.1	19.0
XCUZ27V	25.1	27.0	28.9	2	70	2	0.90	45.0	23	0.1	21.0
XCUZ30V	28.0	30.0	32.0	2	100	2	1.25	47.5	21	0.1	23.0
XCUZ33V	31.0	33.0	35.0	2	100	2	1.80	57.0	19	0.1	25.0
XCUZ36V	34.0	36.0	38.0	2	100	2	2.60	63.0	18	0.1	27.0

Note1: TLP parameters: Z0 = 50 Ω, t_p = 100 ns, t_r = 300 ps, averaging window: t1 = 30 ns to t2 = 60 ns, extraction of dynamic resistance using least squares fit of TLP characteristics between I_{TLP1} = 16 A and I_{TLP2} = 30 A.

Note2: I_{TLP} = 16 A

Note3: V_R = 0 V, f = 1 MHz

7. Marking List

Type No.	Marking	Type No.	Marking	Type No.	Marking
XCUZ5V6	NL	XCUZ11V	P3	XCUZ22V	PA
XCUZ6V2	NM	XCUZ12V	P4	XCUZ24V	PB
XCUZ6V8	NN	XCUZ13V	P5	XCUZ27V	PC
XCUZ7V5	NP	XCUZ15V	P6	XCUZ30V	PD
XCUZ8V2	NQ	XCUZ16V	P7	XCUZ33V	PE
XCUZ9V1	NR	XCUZ18V	P8	XCUZ36V	PF
XCUZ10V	P2	XCUZ20V	P9	—	—

8. Marking

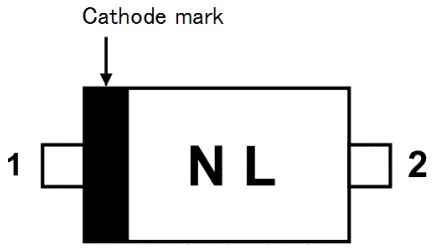


Fig. 8.1 XCUZ5V6

9. Land Pattern Dimensions (for reference only)

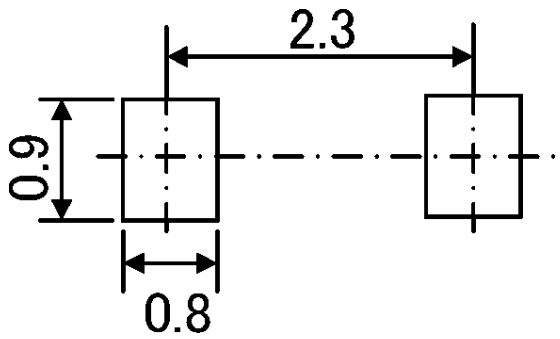


Fig. 9.1 Land Pattern Dimensions
(for reference only) (Unit: mm)

10. Characteristics Curves

10.1. XCUZ series Characteristics Curves(Note)

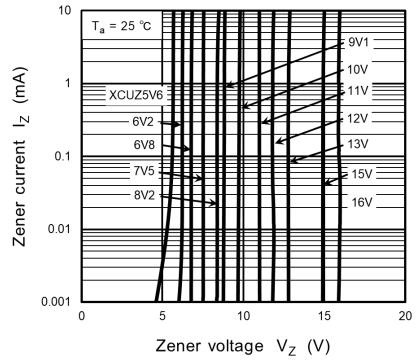


Fig. 10.1.1 I_Z - V_Z(1)

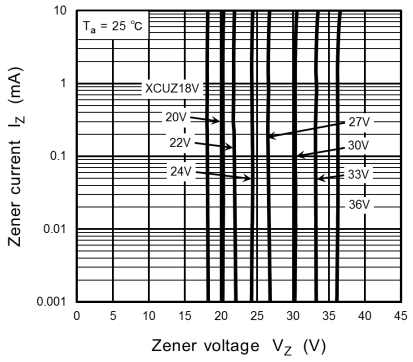


Fig. 10.1.2 I_Z - V_Z(2)

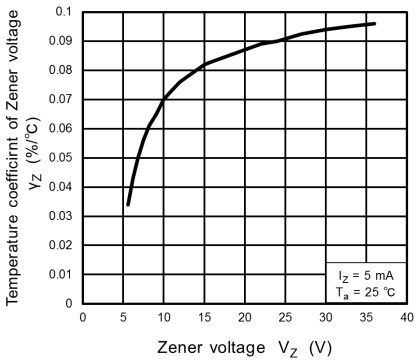


Fig. 10.1.3 γ_Z - V_Z

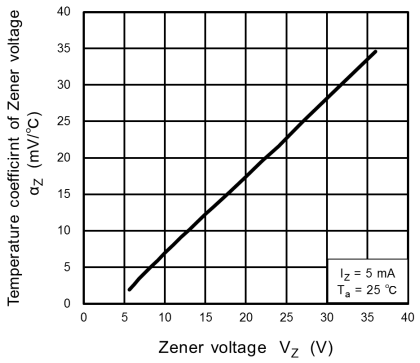


Fig. 10.1.4 α_Z - V_Z

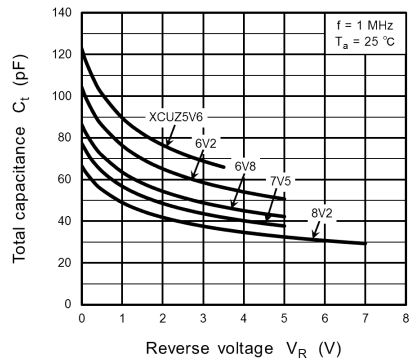


Fig. 10.1.5 C_t - V_R (1)

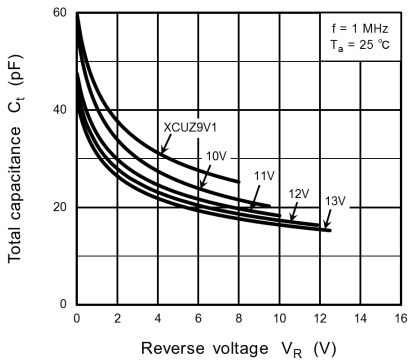


Fig. 10.1.6 C_t - V_R (2)

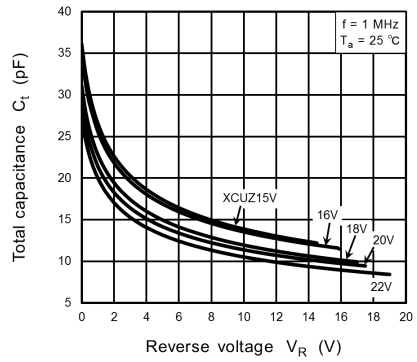


Fig. 10.1.7 C_t - V_R (3)

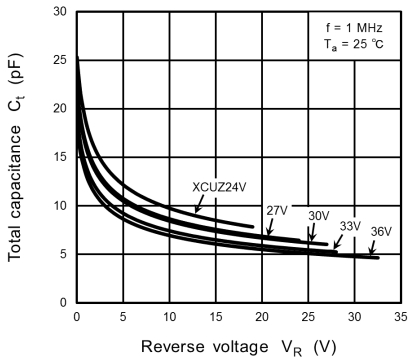


Fig. 10.1.8 C_t - V_R (4)

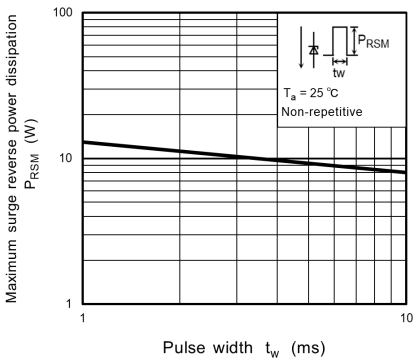


Fig. 10.1.9 P_{RSM} - t_w

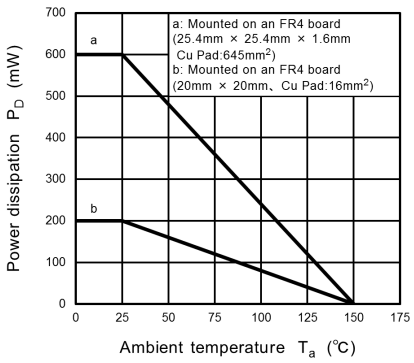


Fig. 10.1.10 P_D - T_a

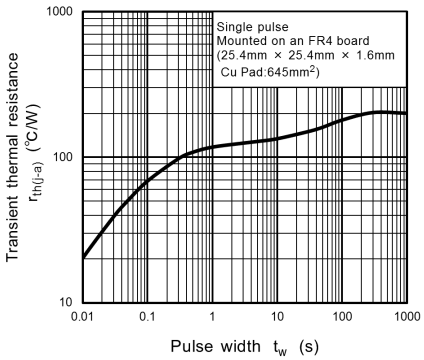


Fig. 10.1.11 $r_{th(j-a)}$ - t_w

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

10.2. XCUZ5V6 Characteristics Curves(Note)

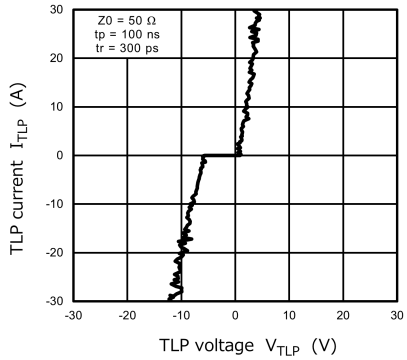


Fig. 10.2.1 I_{TLP} - V_{TLP}

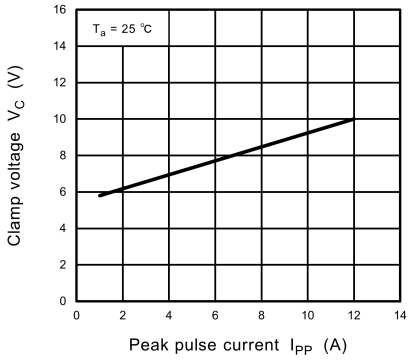


Fig. 10.2.2 V_C - I_{PP}

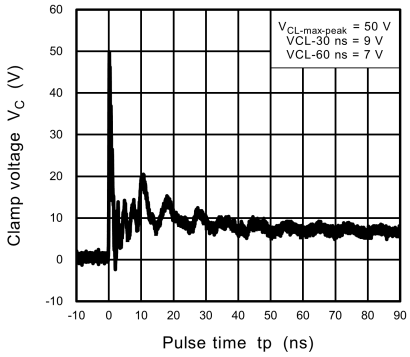


Fig. 10.2.3 IEC61000-4-2 Clamp Waveform +8 kV

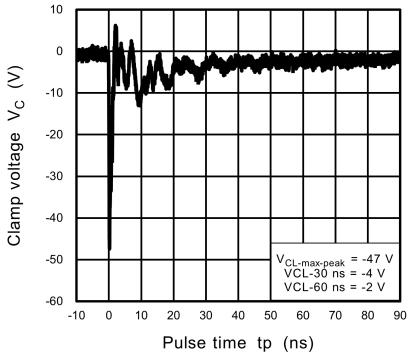


Fig. 10.2.4 IEC61000-4-2 Clamp Waveform -8 kV

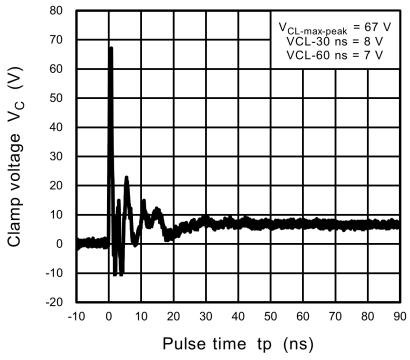


Fig. 10.2.5 ISO10605 Clamp Waveform +8 kV

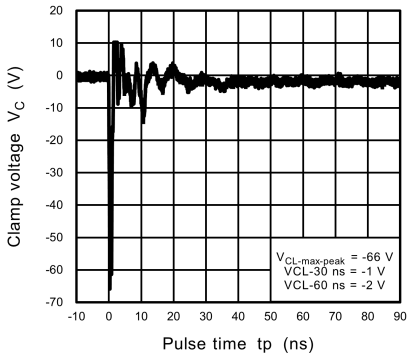


Fig. 10.2.6 ISO10605 Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.3. XCUZ6V2 Characteristics Curves(Note)

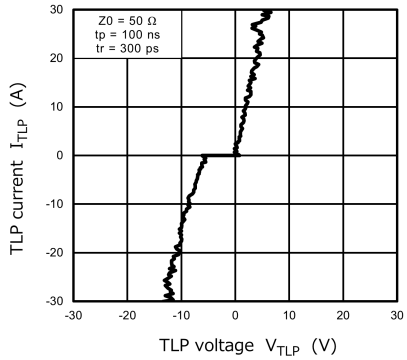


Fig. 10.3.1 I_{TLP} - V_{TLP}

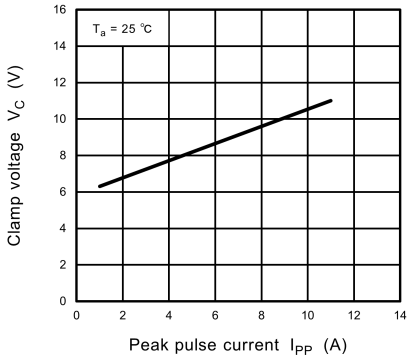


Fig. 10.3.2 V_C - I_{PP}

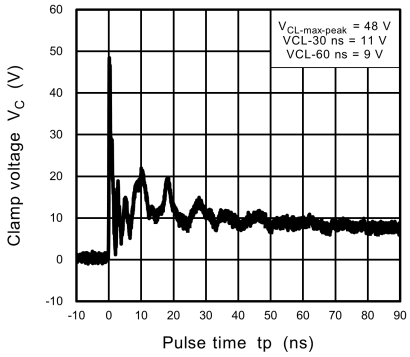


Fig. 10.3.3 IEC61000-4-2 Clamp Waveform +8 kV

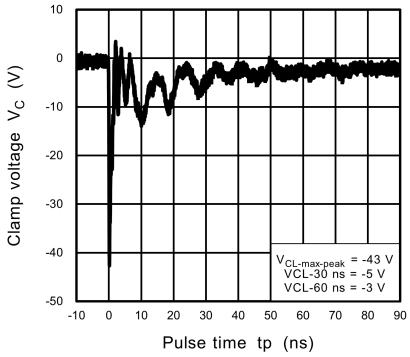


Fig. 10.3.4 IEC61000-4-2 Clamp Waveform -8 kV

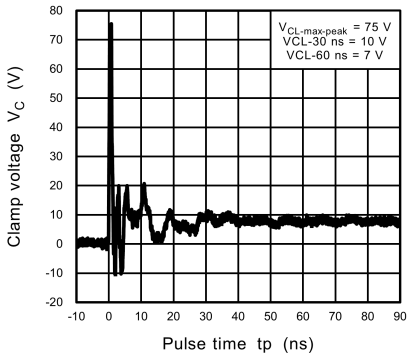


Fig. 10.3.5 ISO10605 Clamp Waveform +8 kV

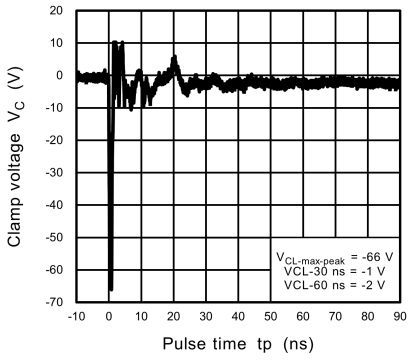


Fig. 10.3.6 ISO10605 Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.4. XCUZ6V8 Characteristics Curves(Note)

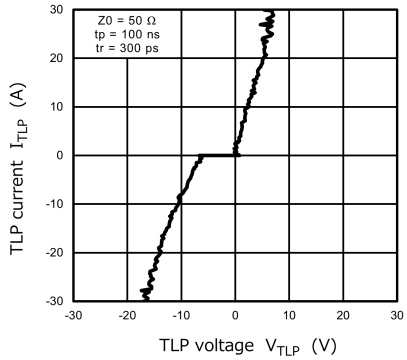


Fig. 10.4.1 I_{TLP} - V_{TLP}

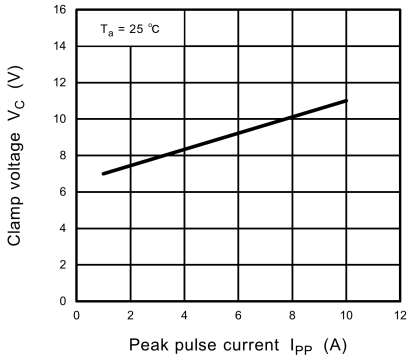


Fig. 10.4.2 V_C - I_{PP}

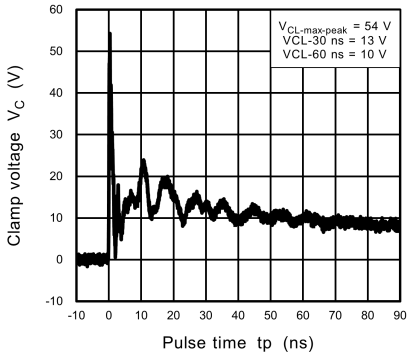


Fig. 10.4.3 IEC61000-4-2 Clamp Waveform +8 kV

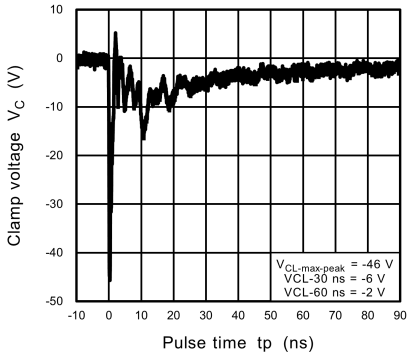


Fig. 10.4.4 IEC61000-4-2 Clamp Waveform -8 kV

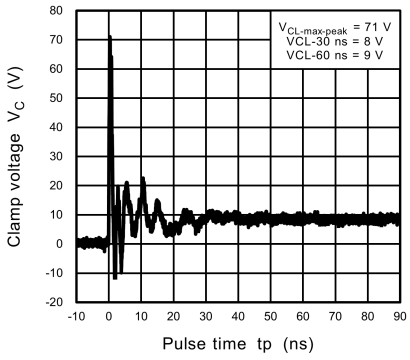


Fig. 10.4.5 ISO10605 Clamp Waveform +8 kV

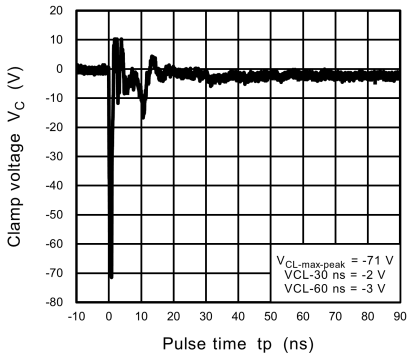


Fig. 10.4.6 ISO10605 Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.5. XCUZ7V5 Characteristics Curves(Note)

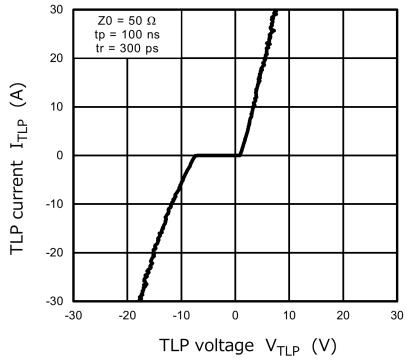


Fig. 10.5.1 I_{TLP} - V_{TLP}

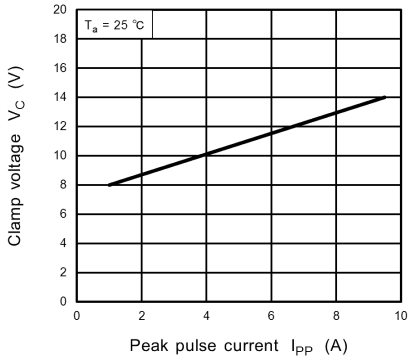


Fig. 10.5.2 V_C - I_{PP}

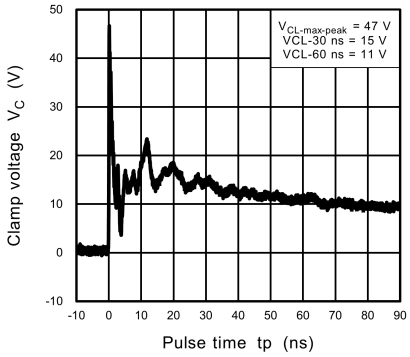


Fig. 10.5.3 IEC61000-4-2 Clamp Waveform +8 kV

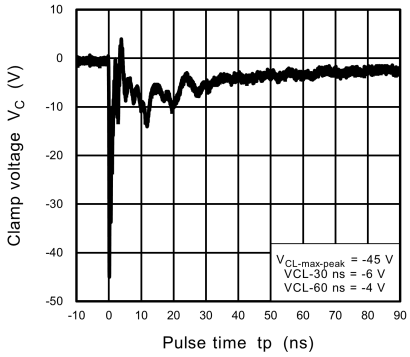


Fig. 10.5.4 IEC61000-4-2 Clamp Waveform -8 kV

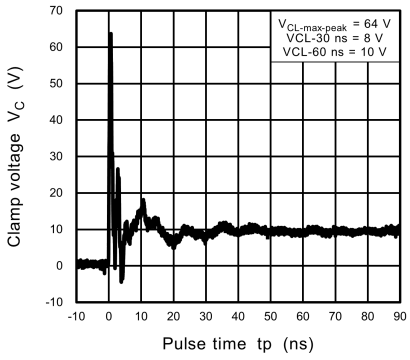


Fig. 10.5.5 ISO10605 Clamp Waveform +8 kV

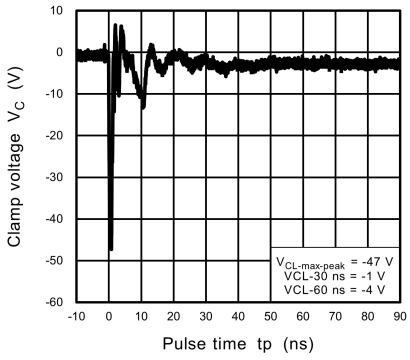


Fig. 10.5.6 ISO10605 Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.6. XCUZ8V2 Characteristics Curves(Note)

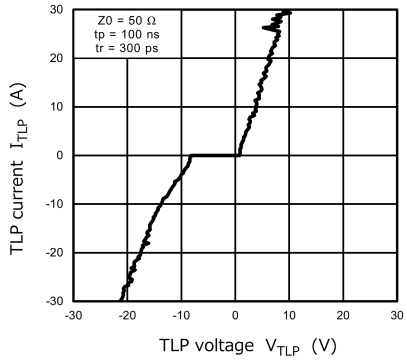


Fig. 10.6.1 I_{TLP} - V_{TLP}

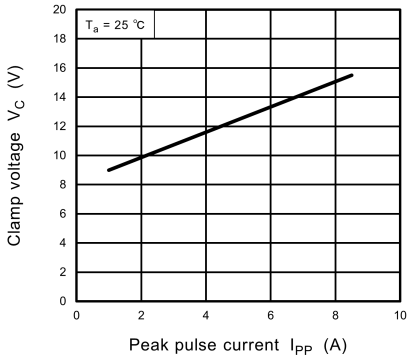


Fig. 10.6.2 V_C - I_{PP}

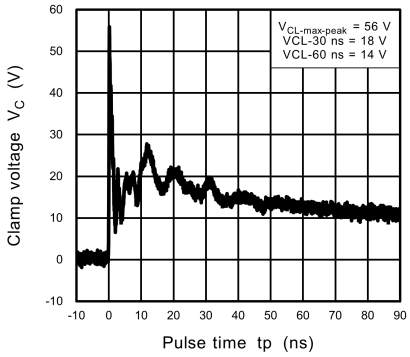


Fig. 10.6.3 IEC61000-4-2 Clamp Waveform +8 kV

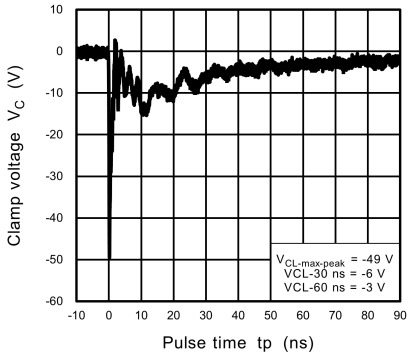


Fig. 10.6.4 IEC61000-4-2 Clamp Waveform -8 kV

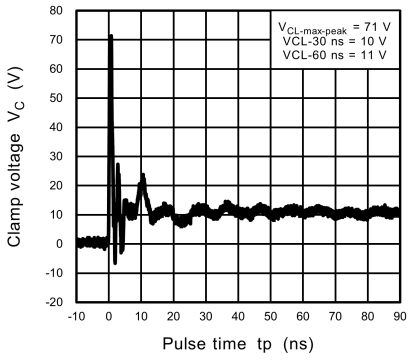


Fig. 10.6.5 ISO10605 Clamp Waveform +8 kV

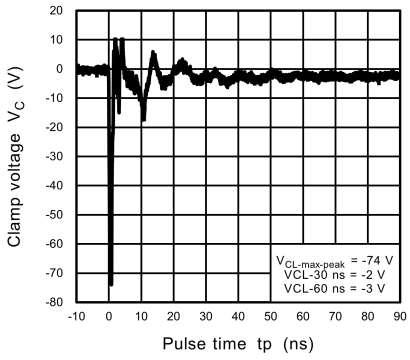


Fig. 10.6.6 ISO10605 Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.7. XCUZ9V1 Characteristics Curves(Note)

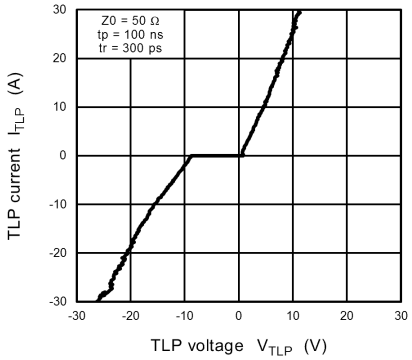


Fig. 10.7.1 I_{TLP} - V_{TLP}

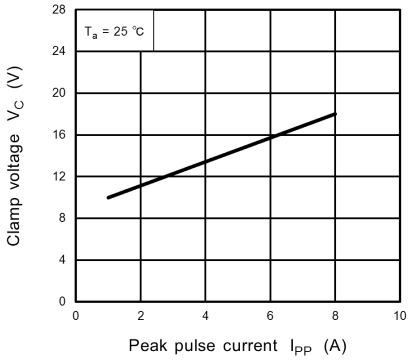


Fig. 10.7.2 V_C - I_{PP}

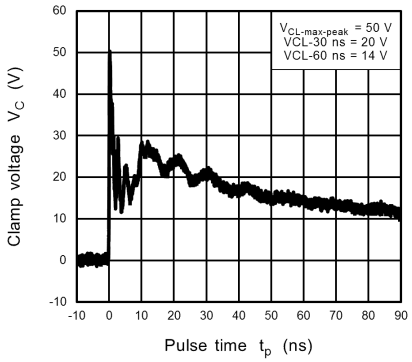


Fig. 10.7.3 IEC61000-4-2 Clamp Waveform +8 kV

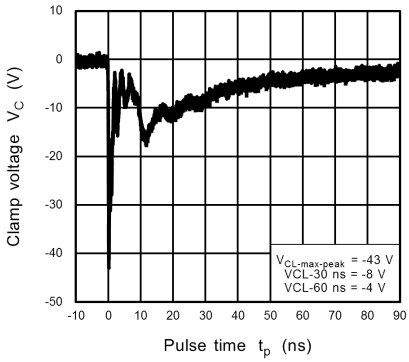


Fig. 10.7.4 IEC61000-4-2 Clamp Waveform -8 kV

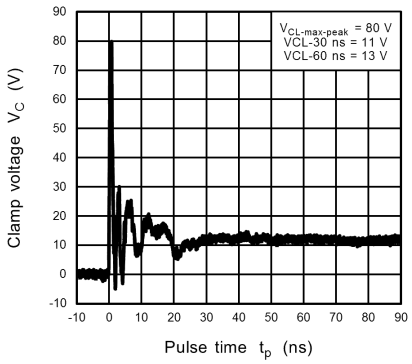


Fig. 10.7.5 ISO10605 Clamp Waveform +8 kV

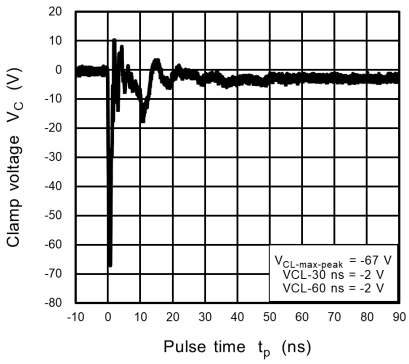


Fig. 10.7.6 ISO10605 Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.8. XCUZ10V Characteristics Curves(Note)

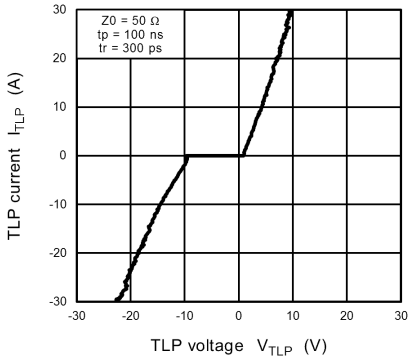


Fig. 10.8.1 I_{TLP} - V_{TLP}

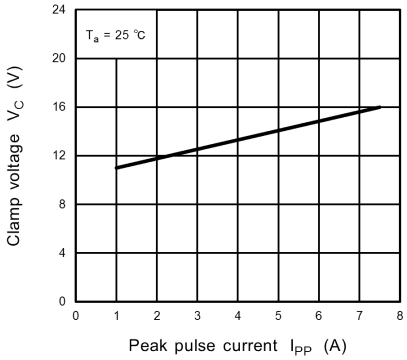


Fig. 10.8.2 V_C - I_{PP}

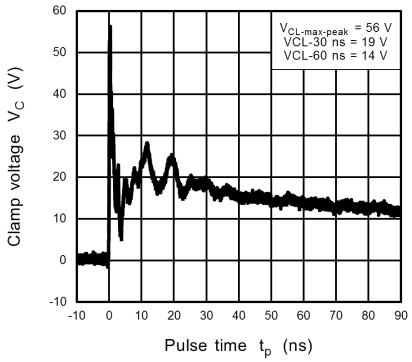


Fig. 10.8.3 IEC61000-4-2 Clamp Waveform +8 kV

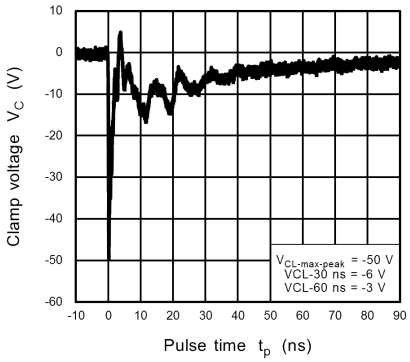


Fig. 10.8.4 IEC61000-4-2 Clamp Waveform -8 kV

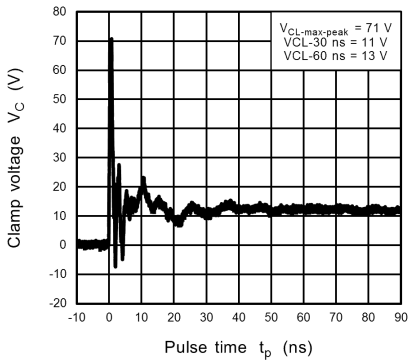


Fig. 10.8.5 ISO10605 Clamp Waveform +8 kV

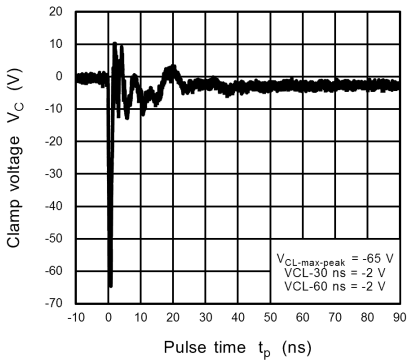


Fig. 10.8.6 ISO10605 Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.9. XCUZ11V Characteristics Curves(Note)

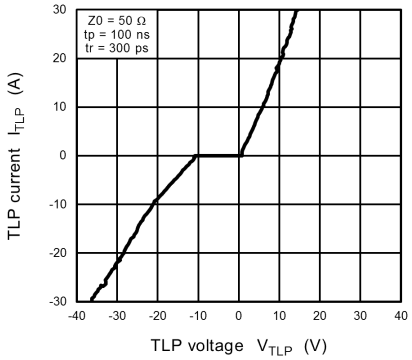


Fig. 10.9.1 I_{TLP} - V_{TLP}

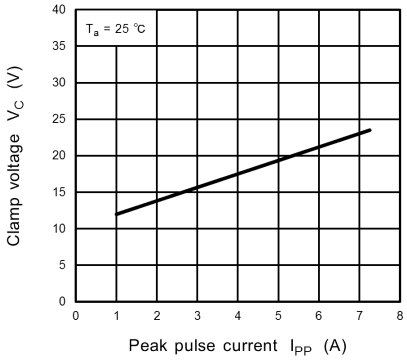


Fig. 10.9.2 V_C - I_{PP}

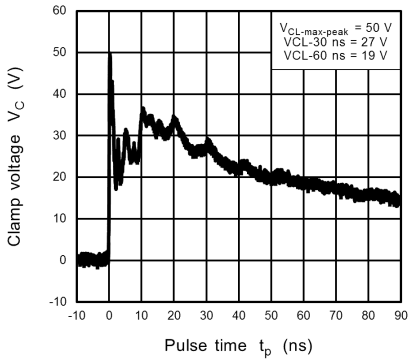


Fig. 10.9.3 IEC61000-4-2
Clamp Waveform +8 kV

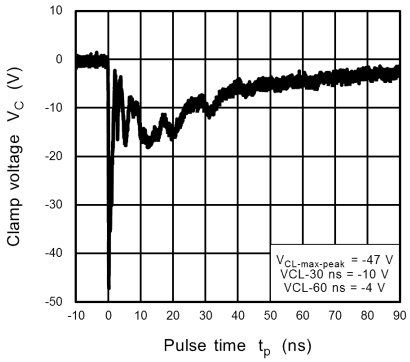


Fig. 10.9.4 IEC61000-4-2
Clamp Waveform -8 kV

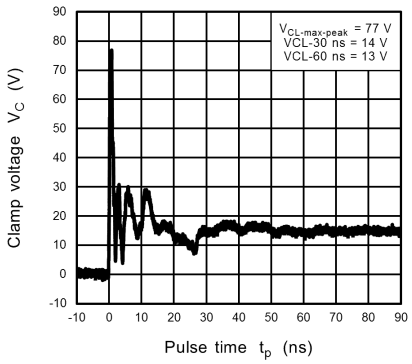


Fig. 10.9.5 ISO10605
Clamp Waveform +8 kV

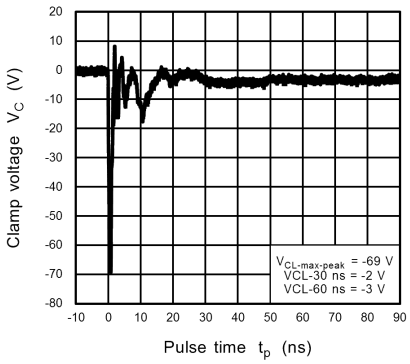


Fig. 10.9.6 ISO10605
Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.10. XCUZ12V Characteristics Curves(Note)

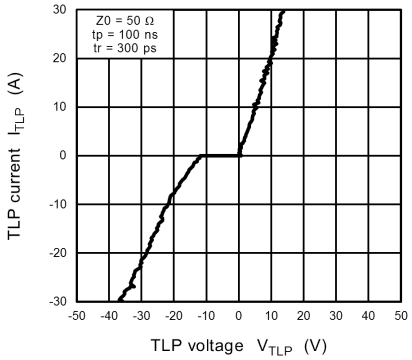


Fig. 10.10.1 I_{TLP} - V_{TLP}

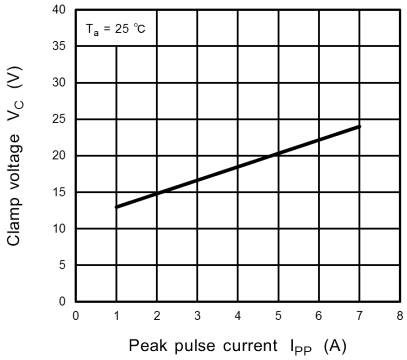


Fig. 10.10.2 V_C - I_{PP}

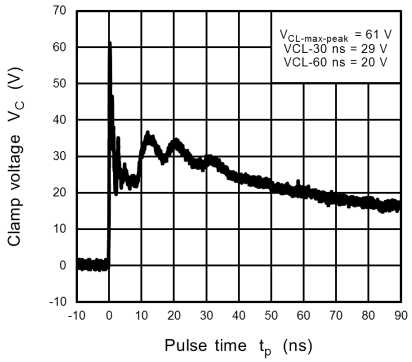


Fig. 10.10.3 IEC61000-4-2
Clamp Waveform +8 kV

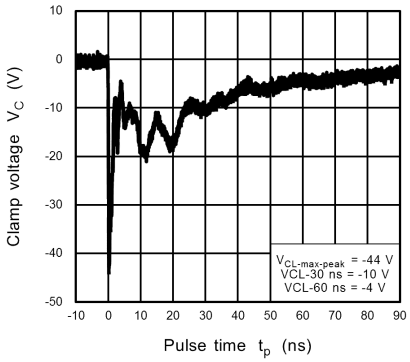


Fig. 10.10.4 IEC61000-4-2
Clamp Waveform -8 kV

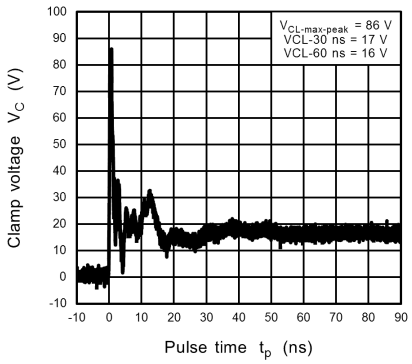


Fig. 10.10.5 ISO10605
Clamp Waveform +8 kV

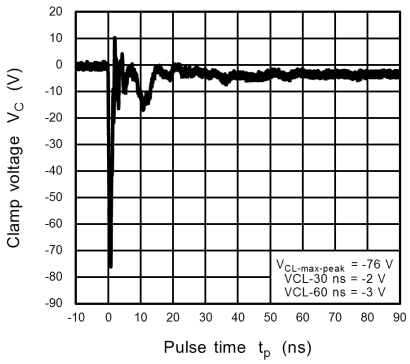


Fig. 10.10.6 ISO10605
Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.11. XCUZ13V Characteristics Curves(Note)

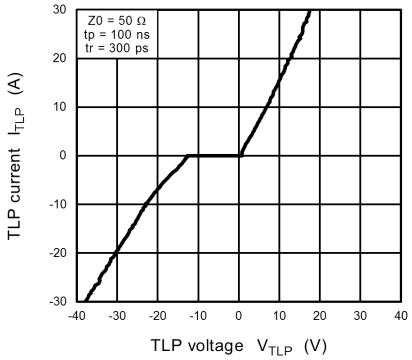


Fig. 10.11.1 I_{TLP} - V_{TLP}

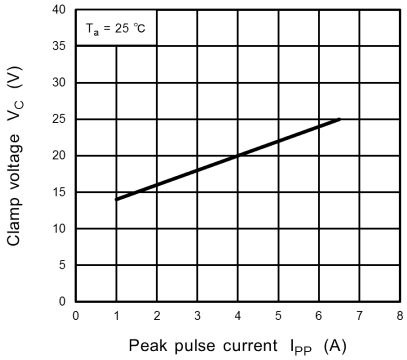


Fig. 10.11.2 V_C - $I_{PP}2$

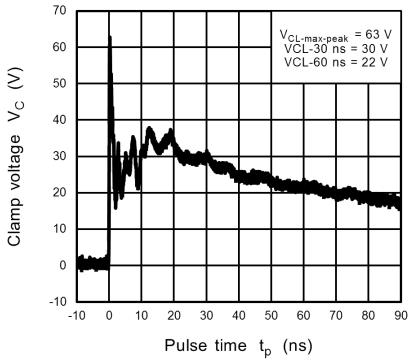


Fig. 10.11.3 IEC61000-4-2
Clamp Waveform +8 kV

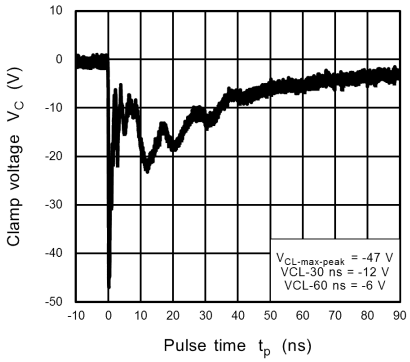


Fig. 10.11.4 IEC61000-4-2
Clamp Waveform -8 kV

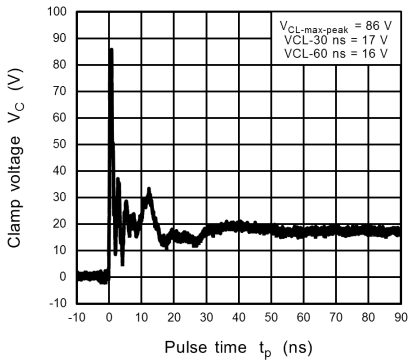


Fig. 10.11.5 ISO10605
Clamp Waveform +8 kV

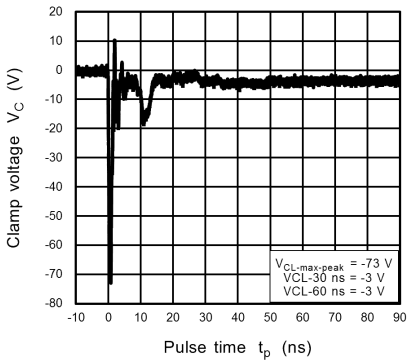


Fig. 10.11.6 ISO10605
Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.12. XCUZ15V Characteristics Curves(Note)

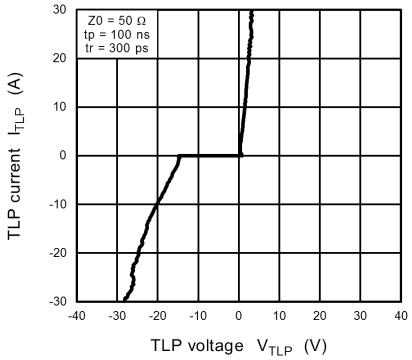


Fig. 10.12.1 I_{TLP} - V_{TLP}

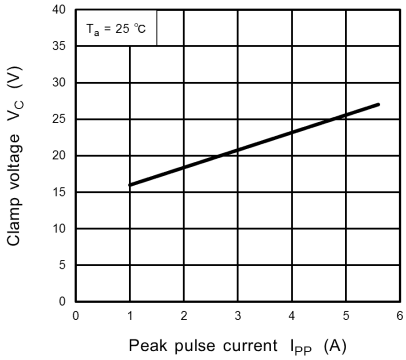


Fig. 10.12.2 V_C - I_{PP}

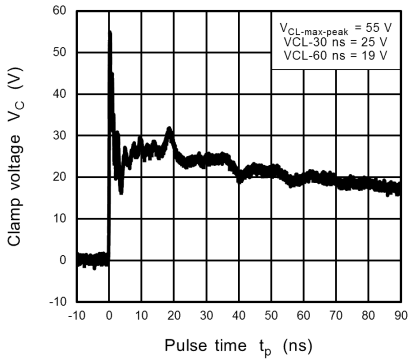


Fig. 10.12.3 IEC61000-4-2 Clamp Waveform +8 kV

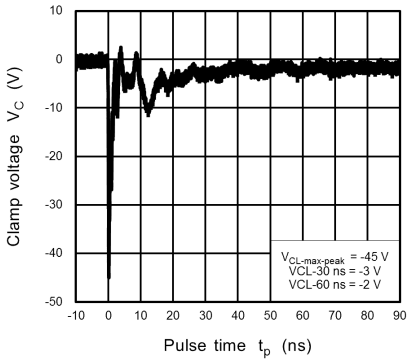


Fig. 10.12.4 IEC61000-4-2 Clamp Waveform -8 kV

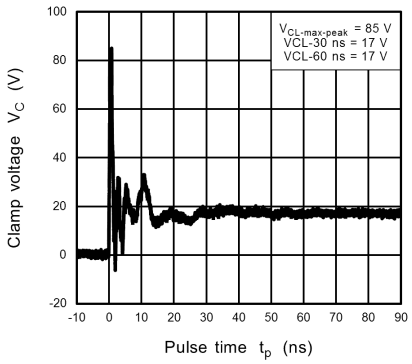


Fig. 10.12.5 ISO10605 Clamp Waveform +8 kV

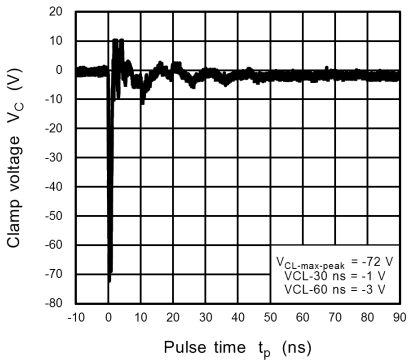


Fig. 10.12.6 ISO10605 Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.13. XCUZ16V Characteristics Curves(Note)

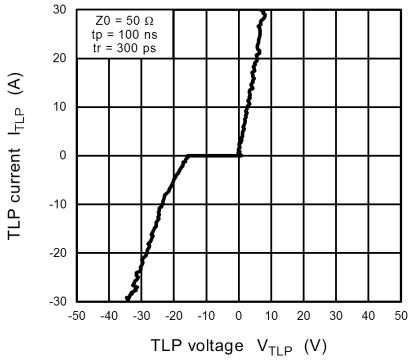


Fig. 10.13.1 I_{TLP} - V_{TLP}

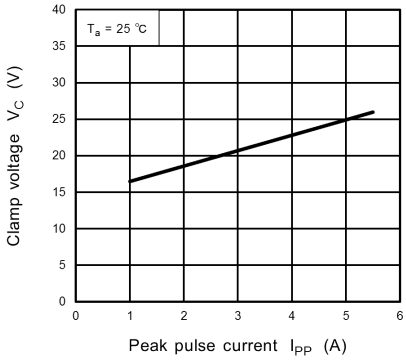


Fig. 10.13.2 V_C - I_{PP}

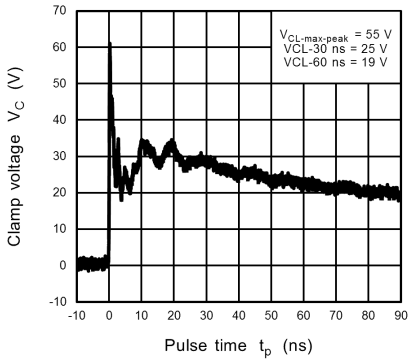


Fig. 10.13.3 IEC61000-4-2 Clamp Waveform +8 kV

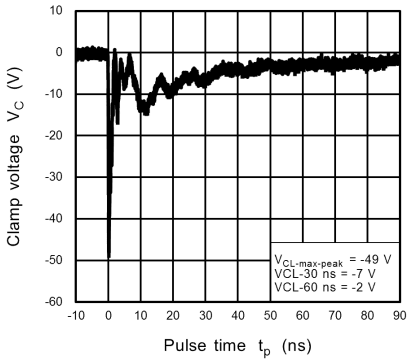


Fig. 10.13.4 IEC61000-4-2 Clamp Waveform -8 kV

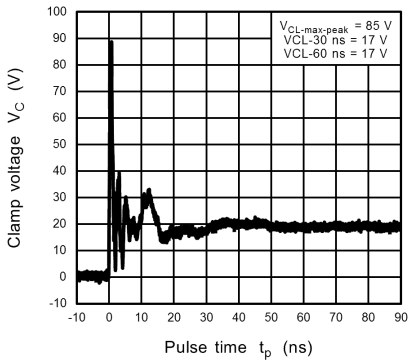


Fig. 10.13.5 ISO10605 Clamp Waveform +8 kV

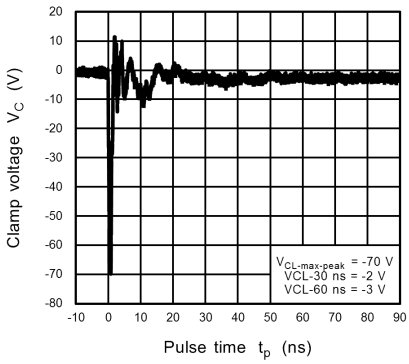


Fig. 10.13.6 ISO10605 Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.14. XCUZ18V Characteristics Curves(Note)

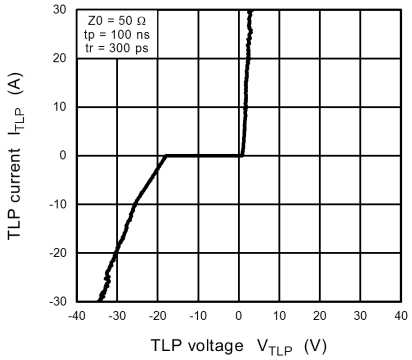


Fig. 10.14.1 I_{TLP} - V_{TLP}

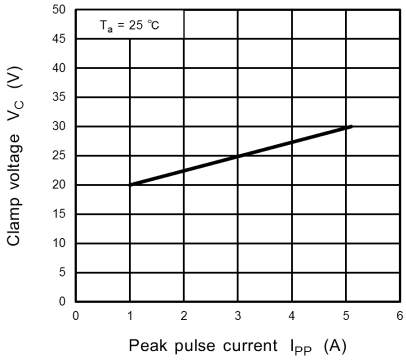


Fig. 10.14.2 V_C - I_{PP}

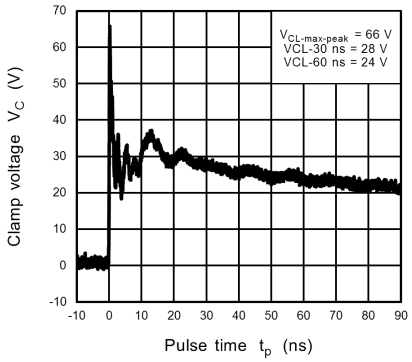


Fig. 10.14.3 IEC61000-4-2 Clamp Waveform +8 kV

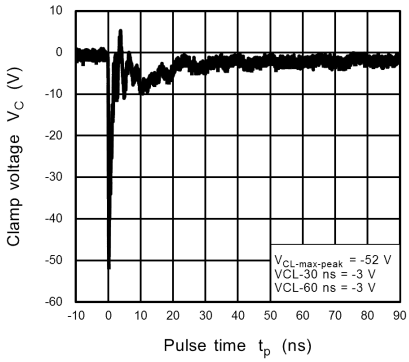


Fig. 10.14.4 IEC61000-4-2 Clamp Waveform -8 kV

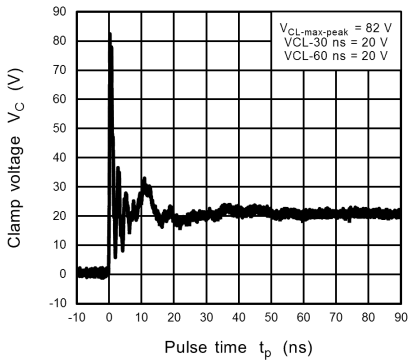


Fig. 10.14.5 ISO10605 Clamp Waveform +8 kV

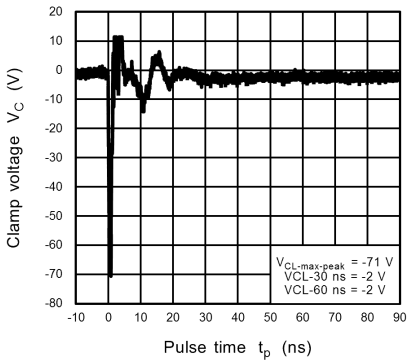


Fig. 10.14.6 ISO10605 Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.15. XCUZ20V Characteristics Curves(Note)

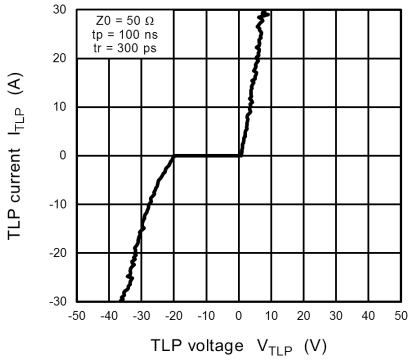


Fig. 10.15.1 I_{TLP} - V_{TLP}

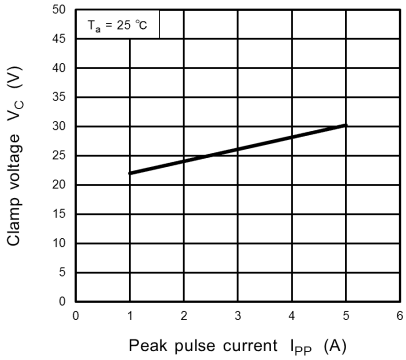


Fig. 10.15.2 V_C - I_{PP}

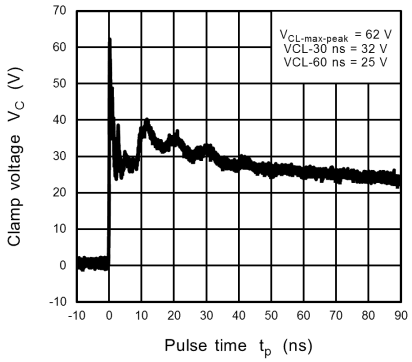


Fig. 10.15.3 IEC61000-4-2 Clamp Waveform +8 kV

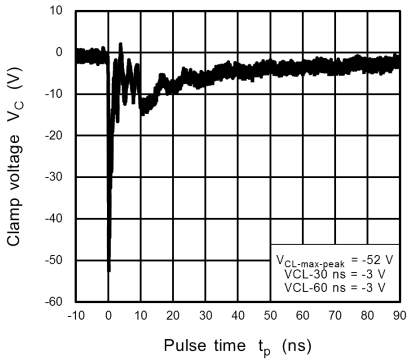


Fig. 10.15.4 IEC61000-4-2 Clamp Waveform -8 kV

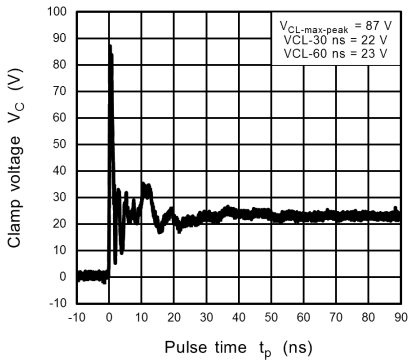


Fig. 10.15.5 ISO10605 Clamp Waveform +8 kV

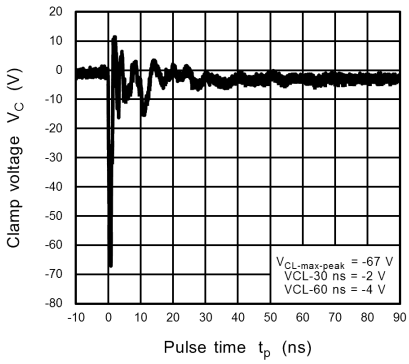


Fig. 10.15.6 ISO10605 Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.16. XCUZ22V Characteristics Curves(Note)

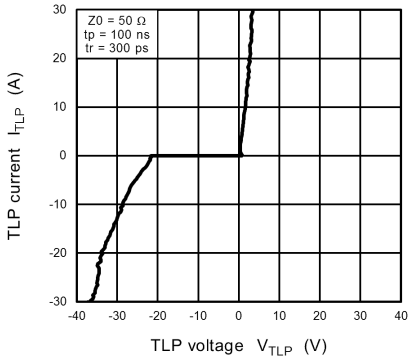


Fig. 10.16.1 I_{TLP} - V_{TLP}

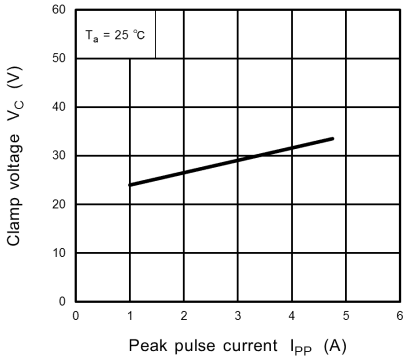


Fig. 10.16.2 V_C - I_{PP}

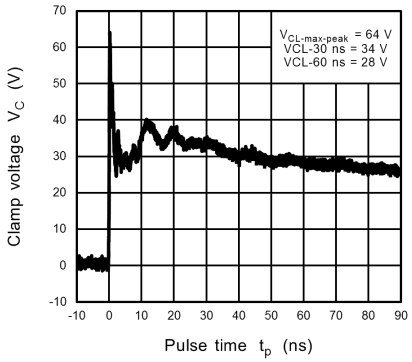


Fig. 10.16.3 IEC61000-4-2 Clamp Waveform +8 kV

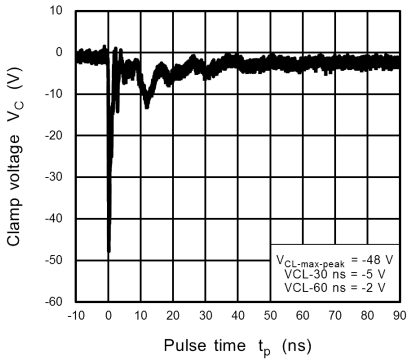


Fig. 10.16.4 IEC61000-4-2 Clamp Waveform -8 kV

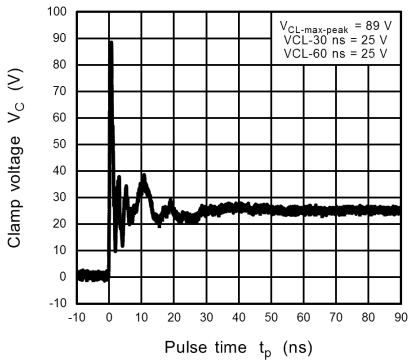


Fig. 10.16.5 ISO10605 Clamp Waveform +8 kV

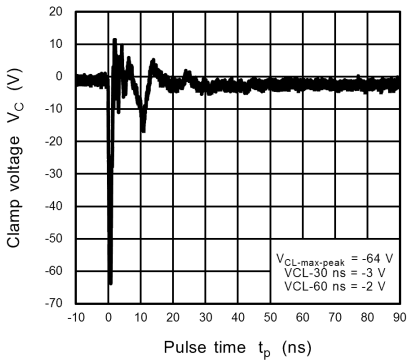


Fig. 10.16.6 ISO10605 Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.17. XCUZ24V Characteristics Curves(Note)

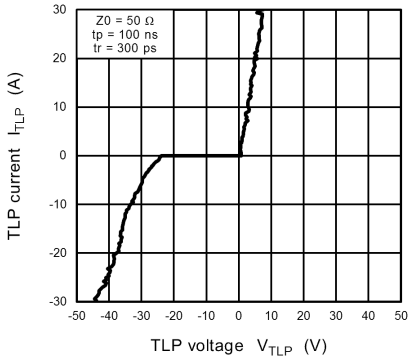


Fig. 10.17.1 I_{TLP} - V_{TLP}

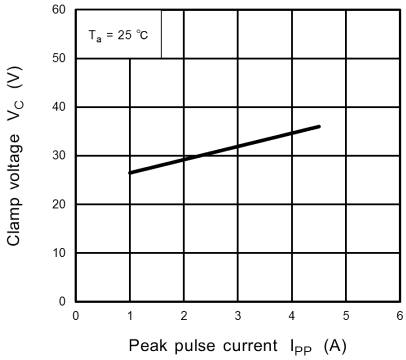


Fig. 10.17.2 V_C - I_{PP}

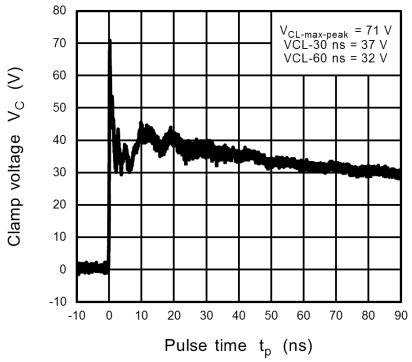


Fig. 10.17.3 IEC61000-4-2
Clamp Waveform +8 kV

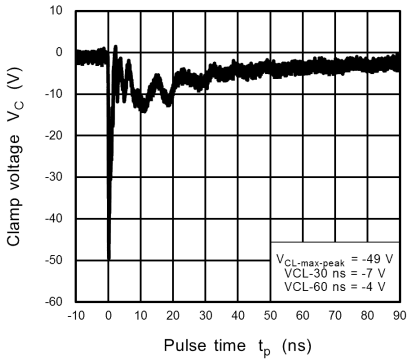


Fig. 10.17.4 IEC61000-4-2
Clamp Waveform -8 kV

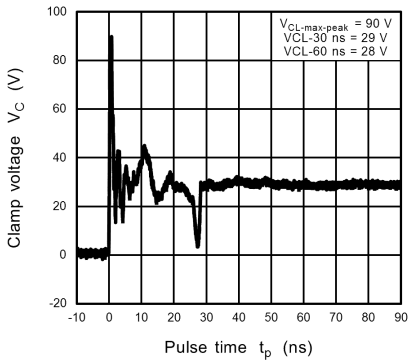


Fig. 10.17.5 ISO10605
Clamp Waveform +8 kV

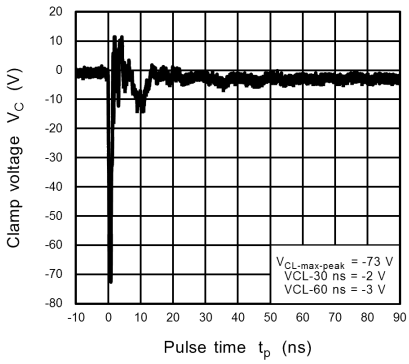


Fig. 10.17.6 ISO10605
Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.18. XCUZ27V Characteristics Curves(Note)

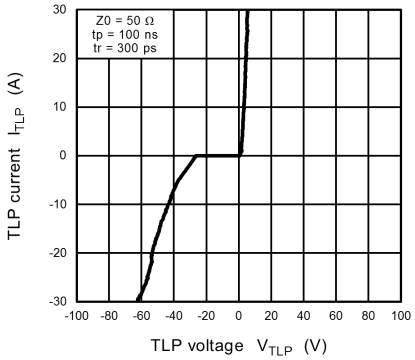


Fig. 10.18.1 I_{TLP} - $V_{TLP}1$

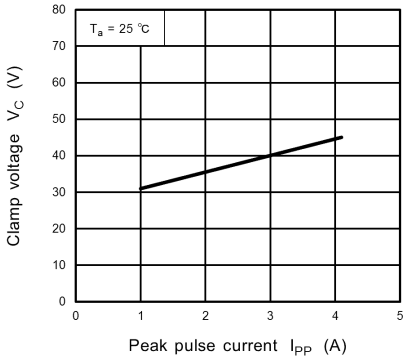


Fig. 10.18.2 V_C - I_{PP}

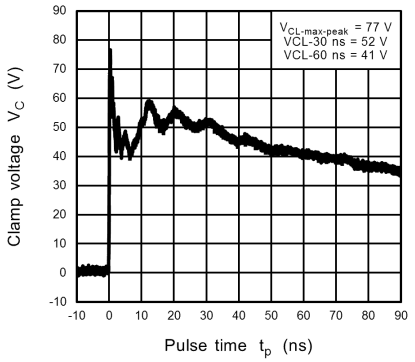


Fig. 10.18.3 IEC61000-4-2
Clamp Waveform +8 kV

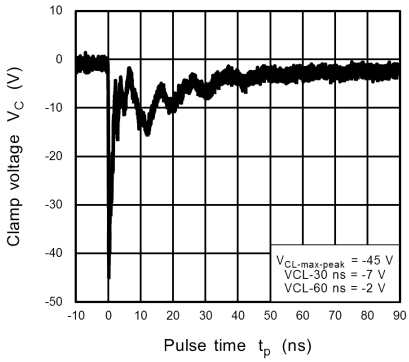


Fig. 10.18.4 IEC61000-4-2
Clamp Waveform -8 kV

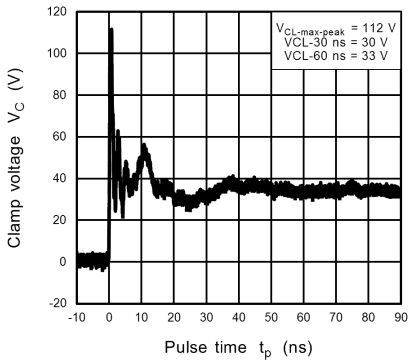


Fig. 10.18.5 ISO10605
Clamp Waveform +8 kV

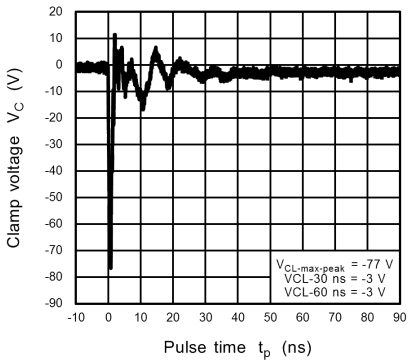


Fig. 10.18.6 ISO10605
Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.19. XCUZ30V Characteristics Curves(Note)

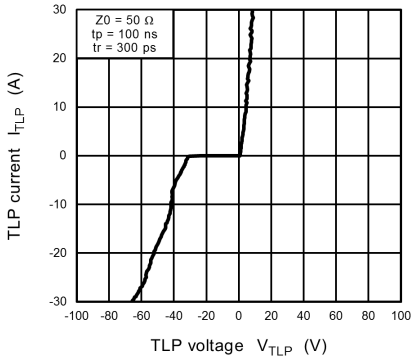


Fig. 10.19.1 I_{TLP} - V_{TLP}

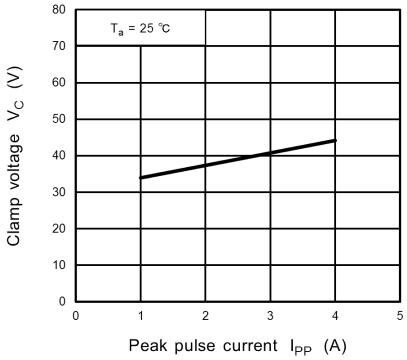


Fig. 10.19.2 V_C - I_{PP}

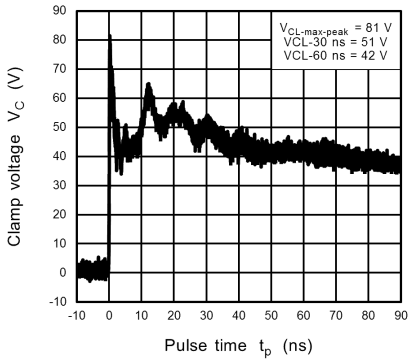


Fig. 10.19.3 IEC61000-4-2
Clamp Waveform +8 kV

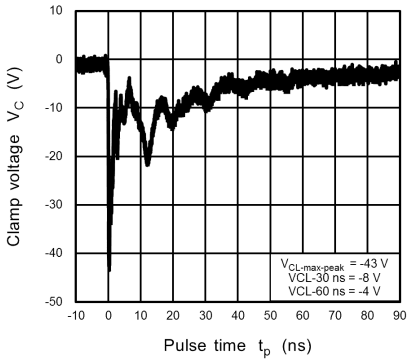


Fig. 10.19.4 IEC61000-4-2
Clamp Waveform -8 kV

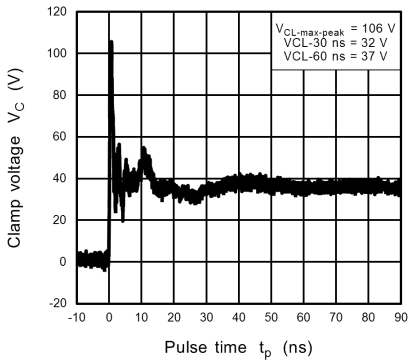


Fig. 10.19.5 ISO10605
Clamp Waveform +8 kV

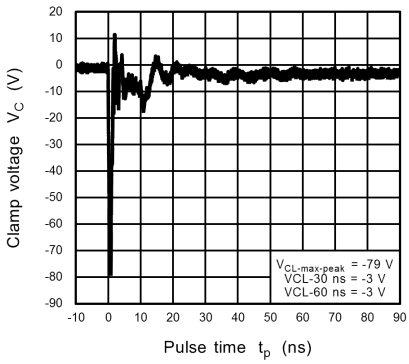


Fig. 10.19.6 ISO10605
Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.20. XCUZ33V Characteristics Curves(Note)

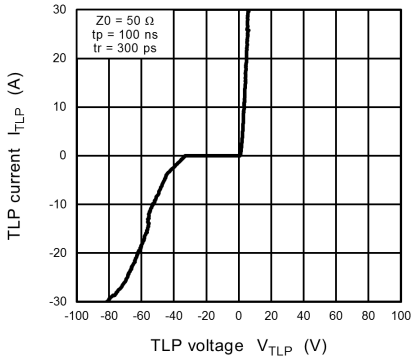


Fig. 10.20.1 I_{TLP} - V_{TLP}

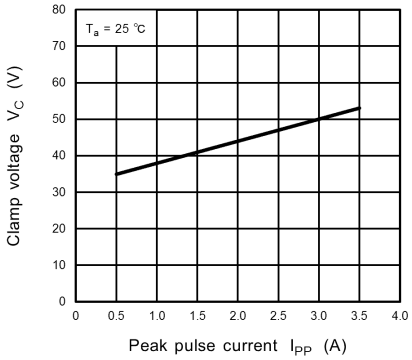


Fig. 10.20.2 V_C - I_{PP}

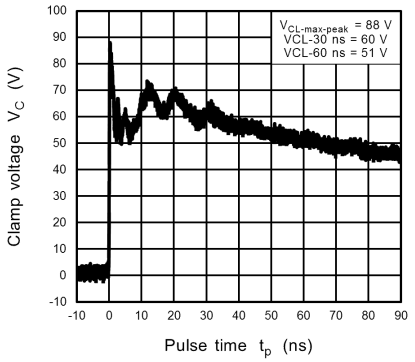


Fig. 10.20.3 IEC61000-4-2 Clamp Waveform +8 kV

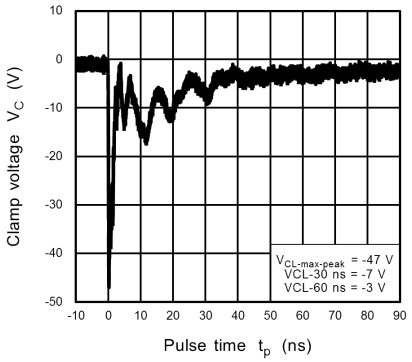


Fig. 10.20.4 IEC61000-4-2 Clamp Waveform -8 kV

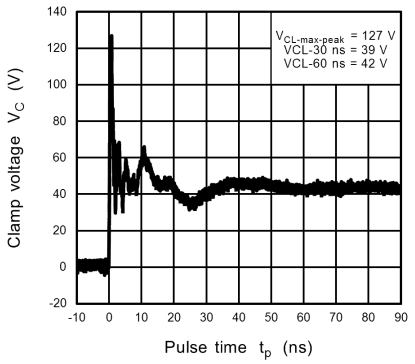


Fig. 10.20.5 ISO10605 Clamp Waveform +8 kV

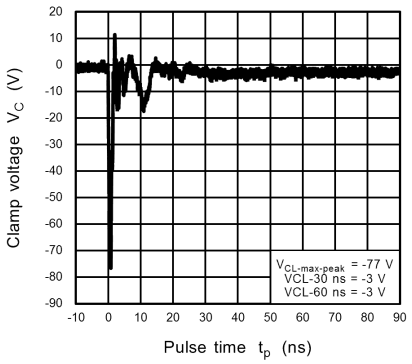


Fig. 10.20.6 ISO10605 Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.21. XCUZ36V Characteristics Curves(Note)

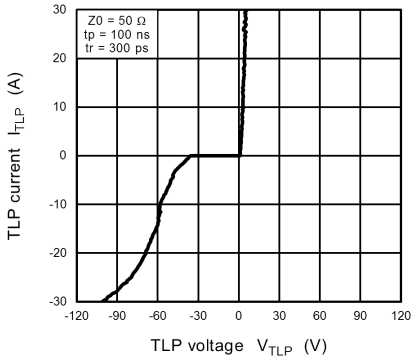


Fig. 10.21.1 I_{TLP} - V_{TLP}

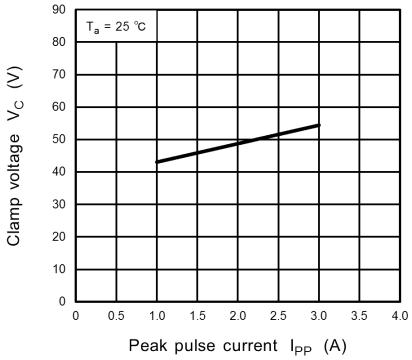


Fig. 10.21.2 V_C - I_{PP}

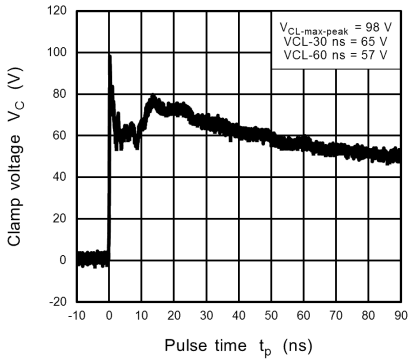


Fig. 10.21.3 IEC61000-4-2
Clamp Waveform +8 kV

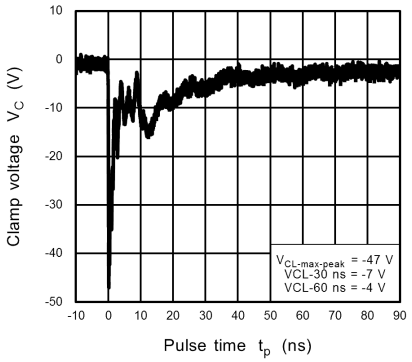


Fig. 10.21.4 IEC61000-4-2
Clamp Waveform -8 kV

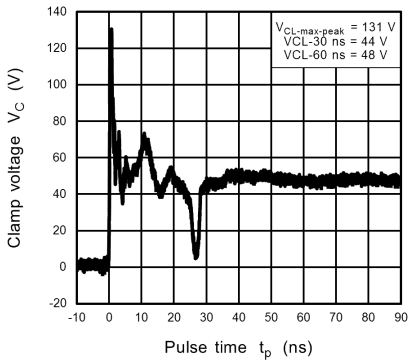


Fig. 10.21.5 ISO10605
Clamp Waveform +8 kV

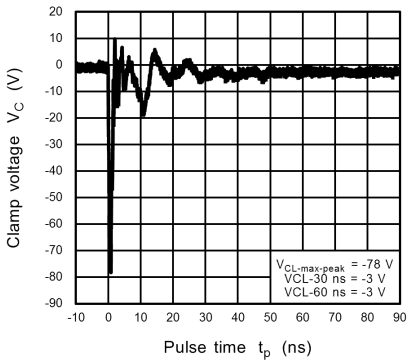


Fig. 10.21.6 ISO10605
Clamp Waveform -8 kV

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.22.1, Fig.10.22.2, Fig.10.22.3 for peak pulse current(V_C-I_{PP}) and clamp waveform measurement circuit.

10.22. V_C-I_{PP} Peak Pulse and Clamp waveform measurement circuit

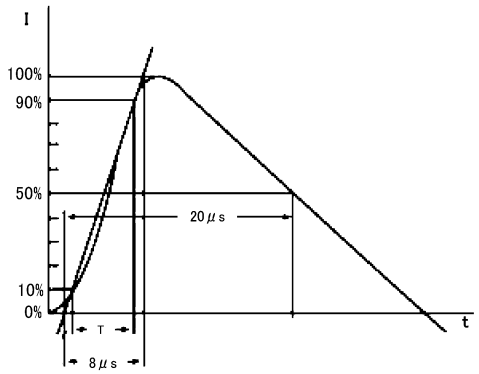


Fig. 10.22.1 V_C-I_{PP} Peak Pulse Current (according to IEC61000-4-5 8/20 μs pulse)

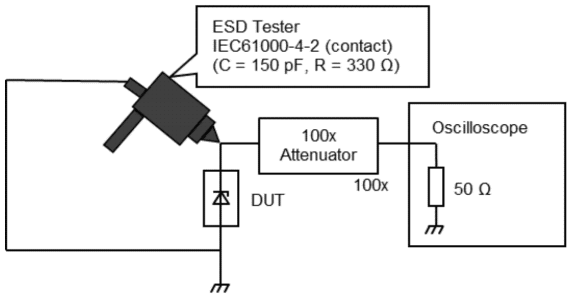


Fig. 10.22.2 Clamp waveform measurement circuit (according to IEC61000-4-2)

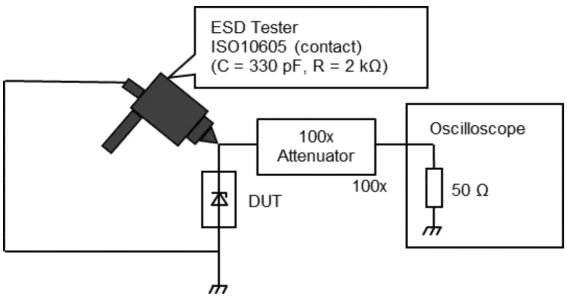
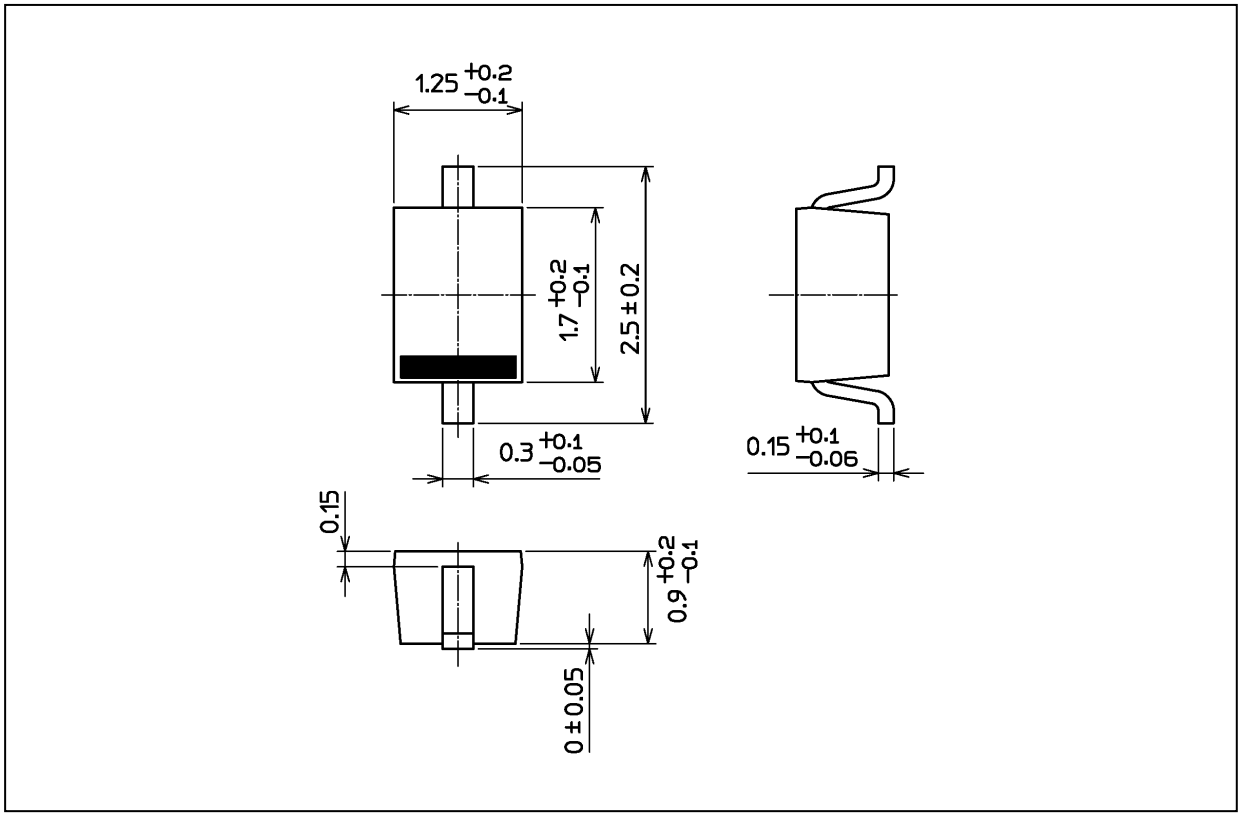


Fig. 10.22.3 Clamp waveform measurement circuit (according to ISO10605)

Package Dimensions

Unit: mm



Weight: 4.5 mg (typ.)

Package Name(s)
JEDEC: SOD-323
Nickname: USC

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