Zener Diode Silicon Epitaxial Planar

CUHZ series 56 V to 75 V

1. Applications

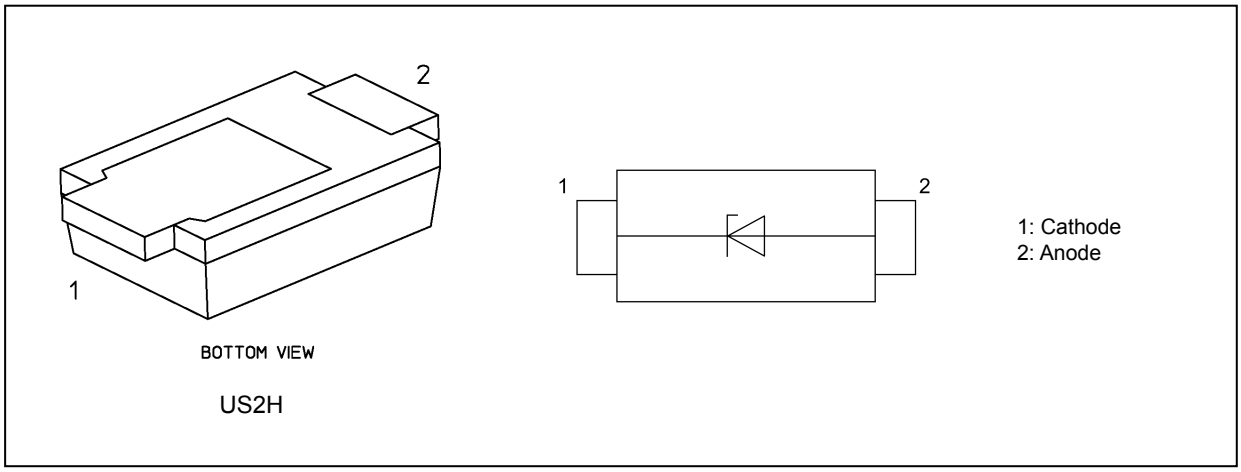
(1) Voltage surge protection

2. Features

(1) Small package

(2) 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)	1200	mW
		(Note 2)	500	
Junction temperature	T_j		150	°C
Storage temperature	T_{stg}		-55 to 150	°C

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 25.4 mm × 25.4 mm × 1.6 mm, CU pad: 645 mm^2

Note 2: Mounted on a glass epoxy circuit board of 25.4 mm × 25.4 mm × 1.6 mm, Cu pad: 4 mm × 4 mm

Start of commercial production
2026-02

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

Type No.	Electrostatic discharge voltage (Contact, Air) V_{ESD}(kV) (Note 1)	Peak pulse power P_{PK}(W) (Note 2)	Peak pulse current I_{PP}(A) (Note 2)
CUHZ56V	±21	1250	10
CUHZ62V	±24	1250	10
CUHZ68V	±27	1250	10
CUHZ75V	±30	1250	10

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: According to IEC61000-4-2.

Note 2: According to IEC61000-4-5 (tp = 8 / 20 μs)

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

	Zener Voltage V_Z (V)				Dynamic Impedance Z_Z (Ω)		Dynamic Resistance R_{DYN} (Ω) (Note 1)	Clamp Voltage V_C (V) (Note 1) (Note 2)	Total Capacitance 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)
CUHZ56V	52	56	60	2	100	2	2.1	83	62	0.1	50
CUHZ62V	58	62	66	2	100	2	1.6	84	55	0.1	55
CUHZ68V	64	68	72	2	100	2	1.3	86	51	0.1	60
CUHZ75V	70	75	79	2	100	2	1.5	85	47	0.1	66

Note 1: TLP parameters: Z0 = 50 Ω, tp = 100 ns, tr = 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.

Note 2: I_{TLP} = 16 A

Note 3: V_R = 0 V, f = 1 MHz

7. Marking List

Type No.	Marking
CUHZ56V	ML
CUHZ62V	MM
CUHZ68V	MN
CUHZ75V	MP

8. Marking

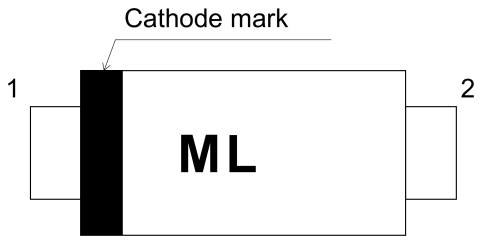


Fig. 8.1 CUHZ56V

9. Land Pattern Dimensions (for reference only)

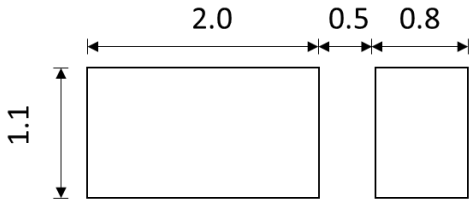


Fig. 9.1 Land Pattern Dimensions (for reference only) (Unit: mm)

10. Characteristics Curves

10.1. CUZ series Characteristics Curves(Note)

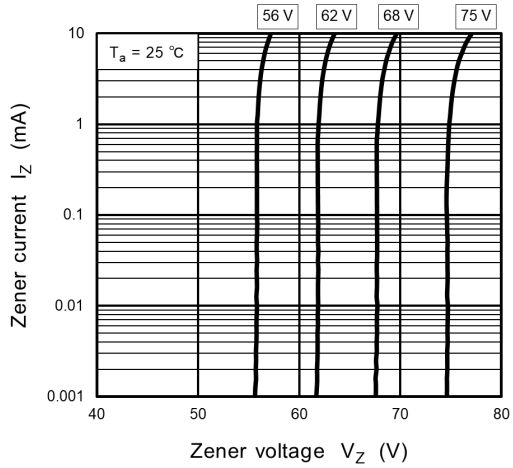


Fig. 10.1.1 I_Z - V_Z

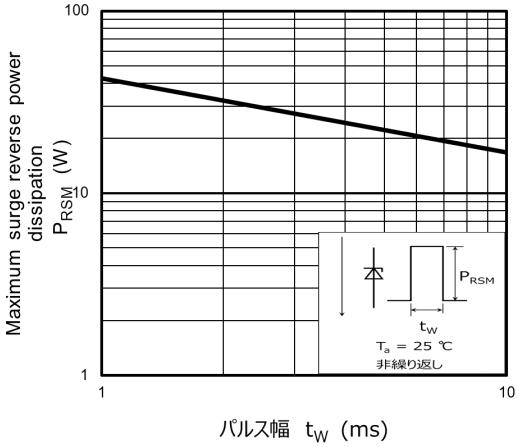


Fig. 10.1.2 P_{RSM} - t_w

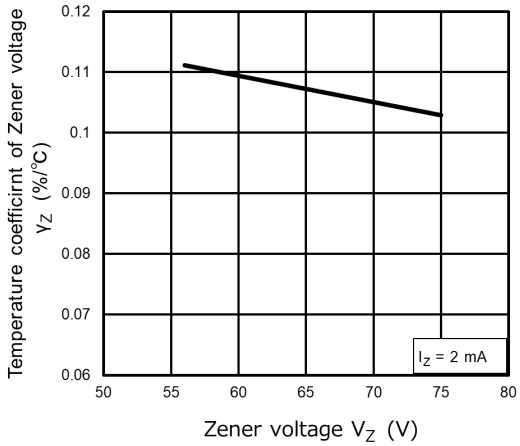


Fig. 10.1.3 γ_Z - V_Z

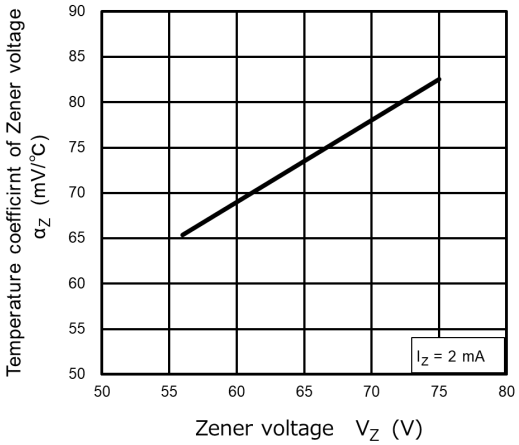


Fig. 10.1.4 α_Z - V_Z

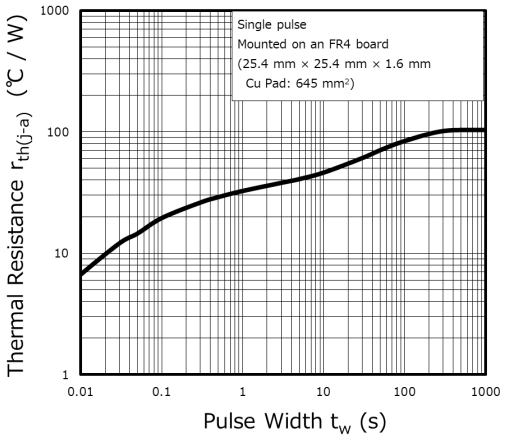


Fig. 10.1.5 $r_{th(j-a)}$ - t_w

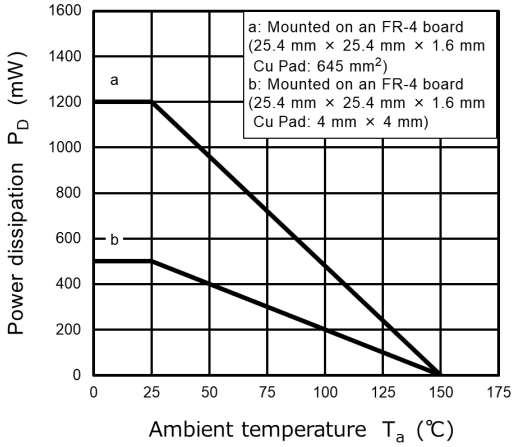


Fig. 10.1.6 P_D - T_a

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

10.2. CUZ56V Characteristics Curves (Note)

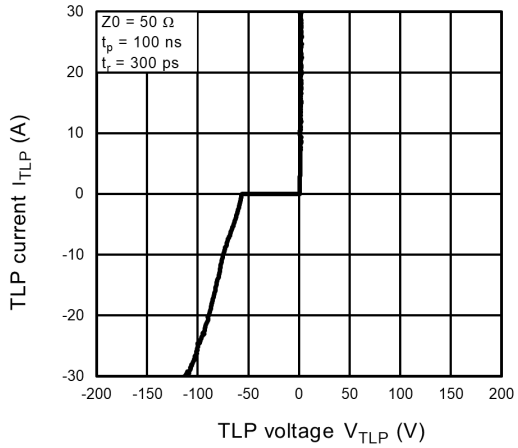


Fig. 10.2.1 I_{TLP} - V_{TLP}

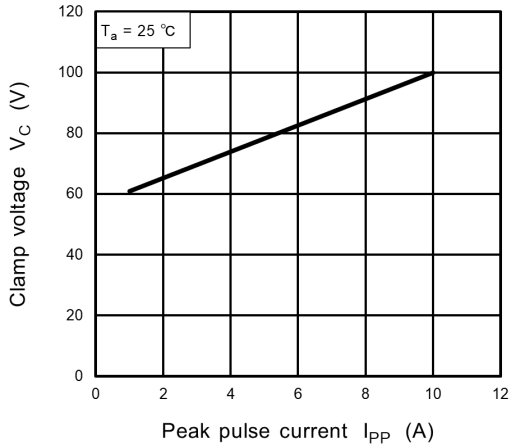


Fig. 10.2.2 V_C - I_{PP}

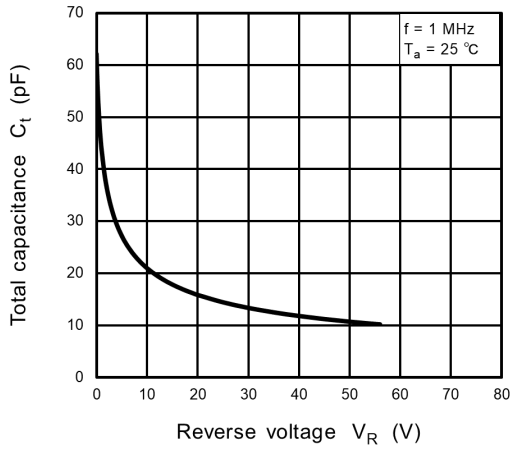


Fig. 10.2.3 C_T - V_R

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.6.1 for peak pulse current(V_C-I_{PP}).

10.3. CUZ62V Characteristics Curves (Note)

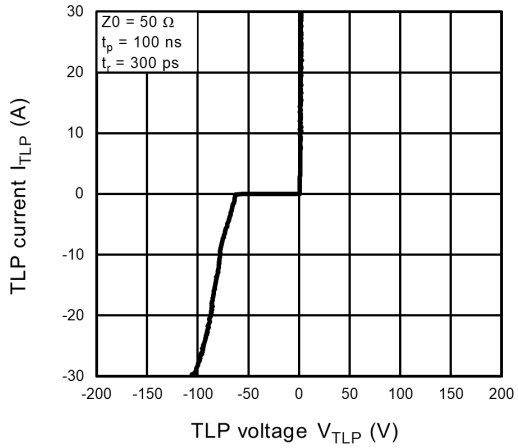


Fig. 10.3.1 I_{TLP} - V_{TLP}

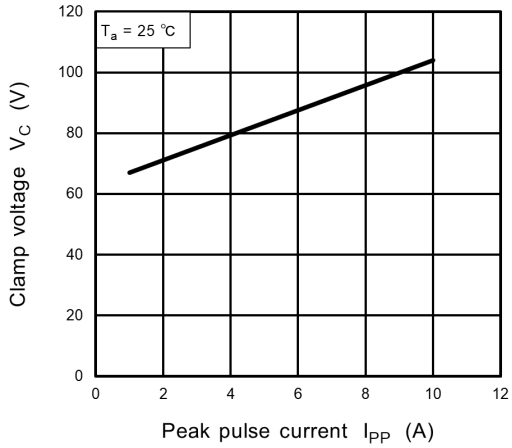


Fig. 10.3.2 V_C - I_{PP}

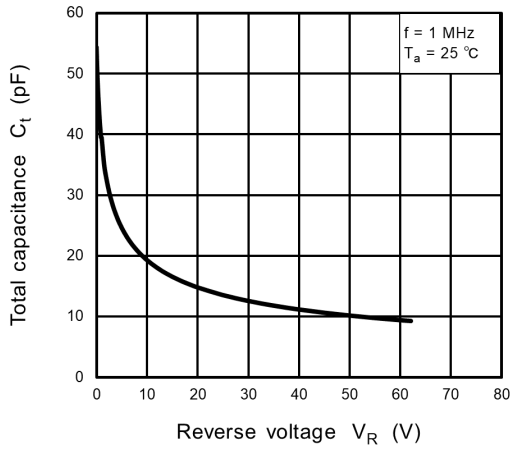


Fig. 10.3.3 C_T - V_R

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.6.1 for peak pulse current(V_C-I_{PP}).

10.4. CUZ68V Characteristics Curves (Note)

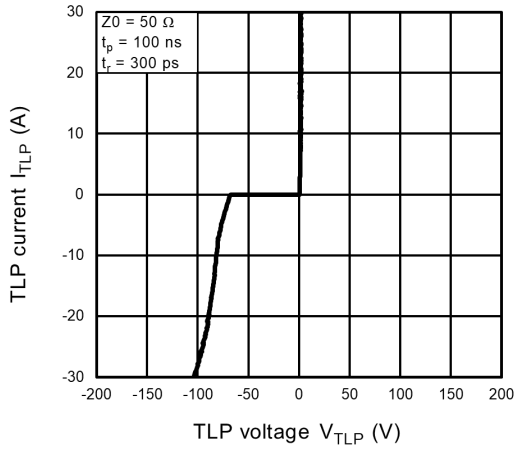


Fig. 10.4.1 I_{TLP} - V_{TLP}

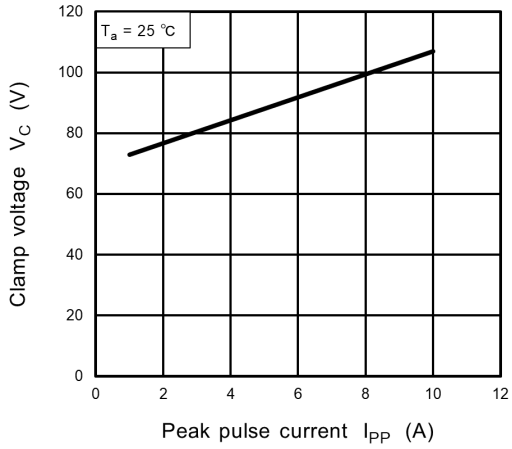


Fig. 10.4.2 V_C - I_{PP}

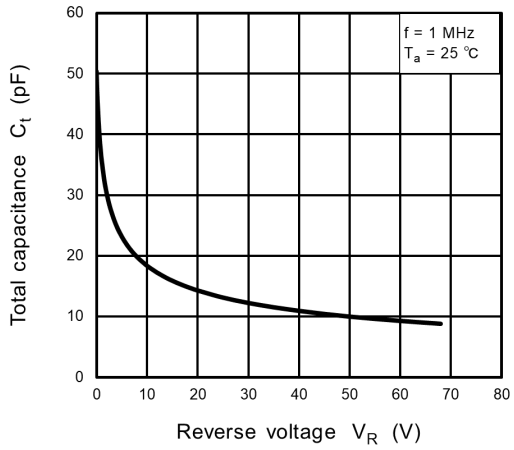


Fig. 10.4.3 C_T - V_R

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.6.1 for peak pulse current(V_C-I_{PP}).

10.5. CUZ75V Characteristics Curves (Note)

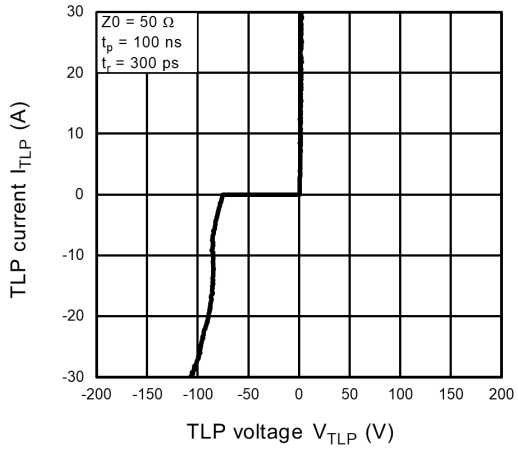


Fig. 10.5.1 I_{TLP} - V_{TLP}

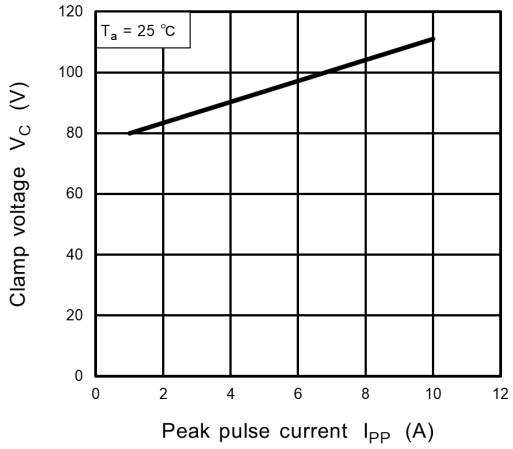


Fig. 10.5.2 V_C - I_{PP}

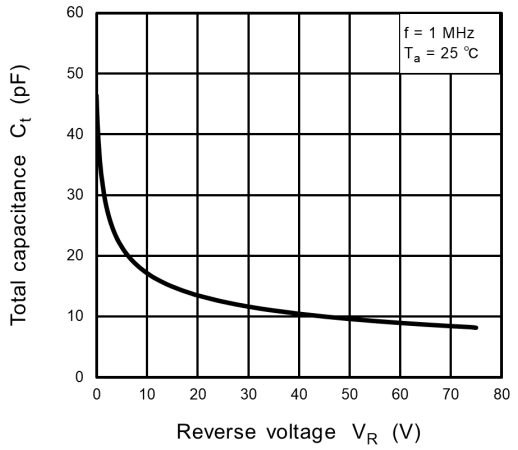


Fig. 10.5.3 C_T - V_R

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.
Refer to Fig.10.6.1 for peak pulse current(V_C-I_{PP}).

10.6. V_C-I_{PP} Peak Pulse current

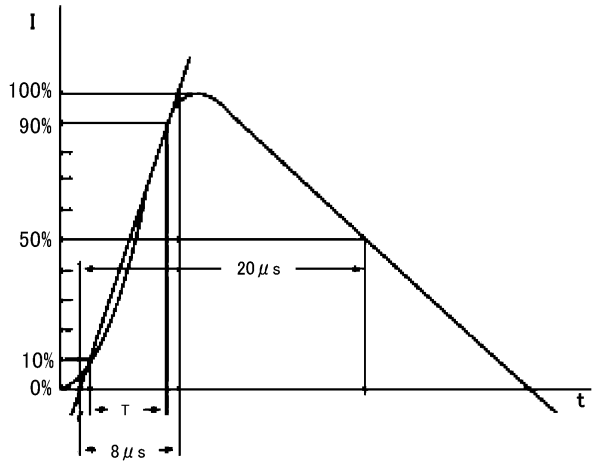
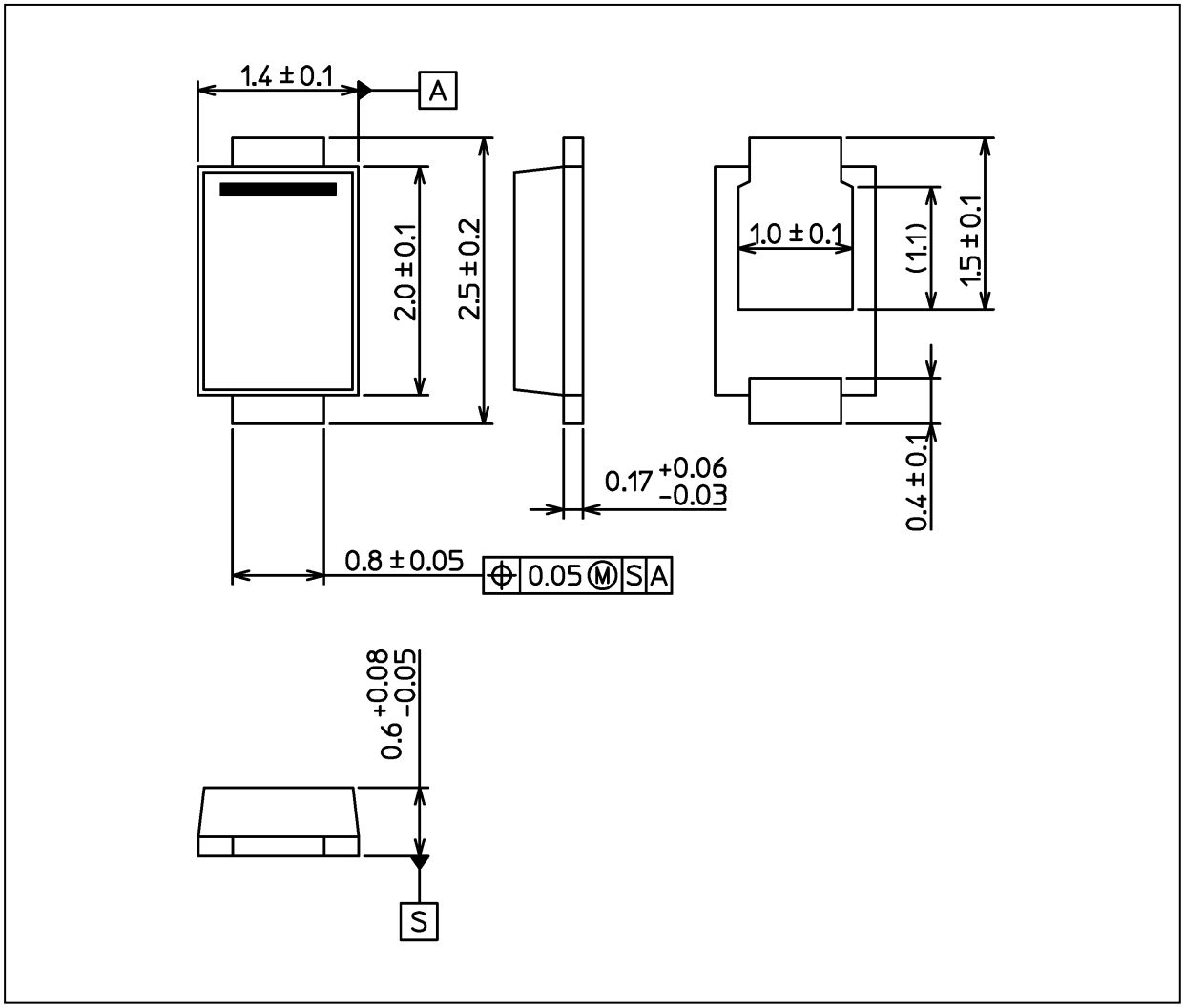


Fig. 10.6.1 V_C - I_{PP} Peak Pulse Current
(according to IEC61000-4-5 8/20 μs pulse)

Package Dimensions

Unit: mm



Weight: 5.4 mg (typ.)

Package Name(s)
Nickname: US2H

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