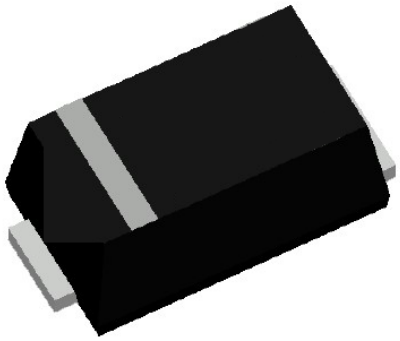
Surface Mount Transient Voltage Suppressor

Uni-directional



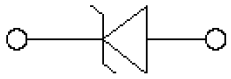
Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement

- Available in Unidirectional
- 150 W peak pulse power capability with a 10/1000 μs waveform
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- High temperature soldering guaranteed: 260 °C/10 s at terminals
- Meets MSL level 1
- Component in accordance to RoHS

Typical Applications

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, telecommunication.



Mechanical Date

- **Package**: SOD-323HE
  Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** For uni-directional types the band denotes cathode end

■Maximum Ratings (Ta=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Conditions	Max
Peak power dissipation(1) (2) (Fig.1)	P_{PPM}	W	with a 10/1000us waveform	150
Peak pulse current(1)	I_{PPM}	A	with a 10/1000us waveform	(See Next Table)
Power dissipation, on infinite heat sink	P_D	W	TL=75℃	1
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only	I_{FSM}	A		20
Maximum instantaneous forward voltage	VF	V	IF=1A	1.2
Operating junction and storage temperature range	T_J,T_{STG}	℃		-55 to +150
Thermal resistance(3)	$R_{\theta JL}$	℃/W	Between junction and lead	50
	$R_{\theta JA}$		Between junction and Ambient	230

Notes:

(1). Non repetitive current pulse，per Fig2 and derated above TA=25℃ per Fig3.

(2). Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

(3).Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

■Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMHE SERIES	F1	Approximate 0.008	3000	120000	7” reel

■ Electrical Characteristics (TA=25℃ unless otherwise noted)

Part Number	Breakdown Voltage V_{BR}@I_T			Maximum Reverse Leakage I_R(3) @ V_{RWM} (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (2) (A)	Maximum Clamping Voltage Vc @ I_{PP} (V)
	Min(V)	Max (V)	I_T(1)(mA)				
SMHE5.0A	6.4	7.07	10	400	5	16.3	9.2
SMHE6.0A	6.67	7.37	10	400	6	14.56	10.3
SMHE6.5A	7.22	7.98	10	250	6.5	13.39	11.2
SMHE7.0A	7.78	8.6	10	100	7	12.5	12
SMHE7.5A	8.33	9.21	1	50	7.5	11.63	12.9
SMHE8.0A	8.89	9.83	1	25	8	11.03	13.6
SMHE8.5A	9.44	10.4	1	10	8.5	10.42	14.4
SMHE9.0A	10	11.1	1	5	9	9.74	15.4
SMHE10A	11.1	12.3	1	2.5	10	8.82	17
SMHE11A	12.2	13.5	1	2.5	11	8.24	18.2
SMHE12A	13.3	14.7	1	2.5	12	7.54	19.9
SMHE13A	14.4	15.9	1	1	13	6.98	21.5
SMHE14A	15.6	17.2	1	1	14	6.47	23.2
SMHE15A	16.7	18.5	1	1	15	6.15	24.4
SMHE16A	17.8	19.7	1	1	16	5.77	26
SMHE17A	18.9	20.9	1	1	17	5.43	27.6
SMHE18A	20	22.1	1	1	18	5.13	29.2
SMHE19A	21.1	23.3	1	1	19	4.90	30.6
SMHE20A	22.2	24.5	1	1	20	4.63	32.4
SMHE22A	24.4	26.9	1	1	22	4.23	35.5
SMHE24A	26.7	29.5	1	1	24	3.86	38.9
SMHE26A	28.9	31.9	1	1	26	3.56	42.1
SMHE28A	31.1	34.4	1	1	28	3.30	45.4
SMHE30A	33.3	36.8	1	1	30	3.10	48.4
SMHE33A	36.7	40.6	1	1	33	2.81	53.3
SMHE36A	40	44.2	1	1	36	2.55	58.1
SMHE40A	44.4	49.1	1	1	40	2.32	64.5
SMHE43A	47.8	52.8	1	1	43	2.16	69.4
SMHE45A	50	55.3	1	1	45	2.06	72.7
SMHE48A	53.3	58.9	1	1	48	1.94	77.4
SMHE51A	56.7	62.7	1	1	51	1.82	82.4
SMHE54A	60	66.3	1	1	54	1.72	87.1
SMHE58A	64.4	71.2	1	1	58	1.60	93.6

SMHE60A	66.7	73.7	1	1	60	1.54	96.8
SMHE64A	71.1	78.6	1	1	64	1.45	103
SMHE70A	77.8	86	1	1	70	1.33	113
SMHE75A	83.3	92.1	1	1	75	1.24	121
SMHE78A	86.7	95.8	1	1	78	1.19	126
SMHE80A	88.8	97.6	1	1	80	1.16	129
SMHE85A	94.4	104	1	1	85	1.09	137
SMHE90A	100	111	1	1	90	1.03	146

Notes:
(1) t_p≤50ms Pulse test: t_p≤50ms.
(2) Surge current waveform per Fig. 2 and derated per Fig.3.
(3) For bi-directional types having V_{RWM} of 10 V and less, the I_R limit is doubled.

■ Characteristics(Typical)

FIG1:Peak Pulse Power Rating Curve

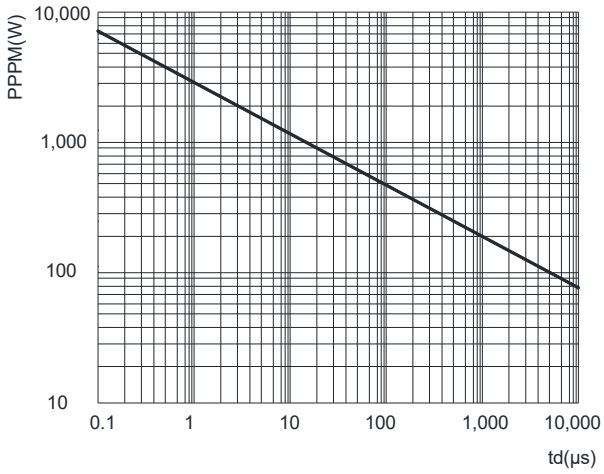


FIG2: Pulse Waveform

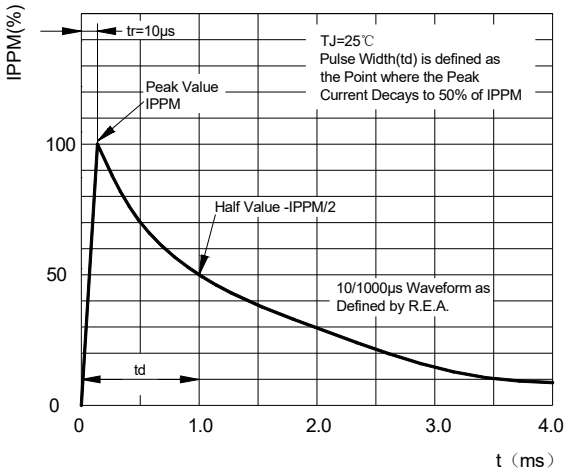


FIG3: Pulse Power or Current vs. Initial Junction Temperature

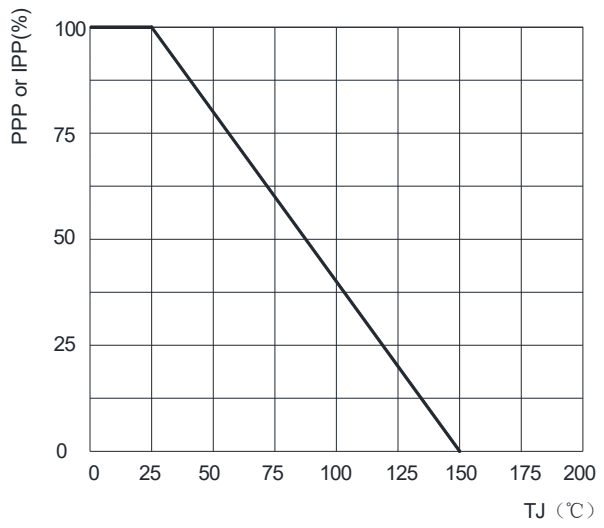
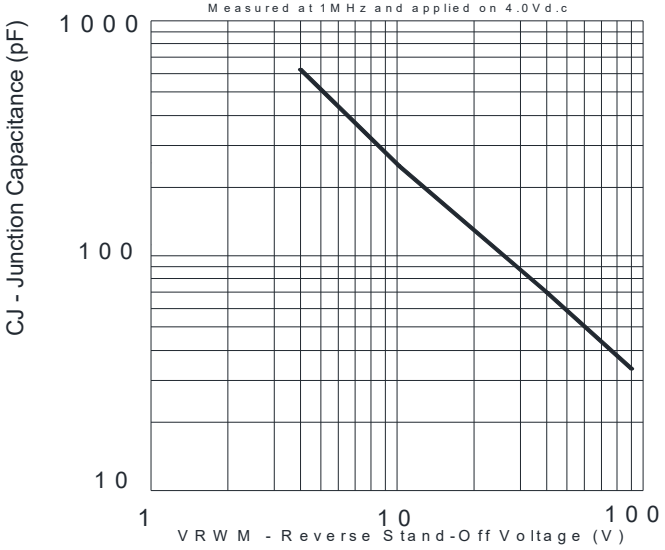
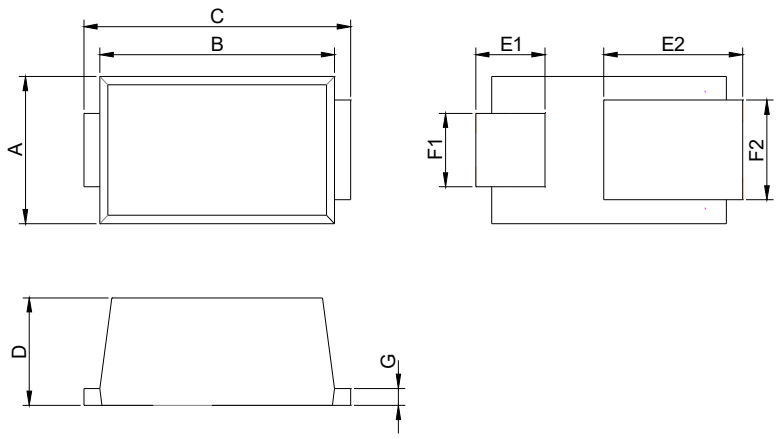


FIG 4 :Typical Junction Capacitance

Measured at 1MHz and applied on 4.0Vd.c

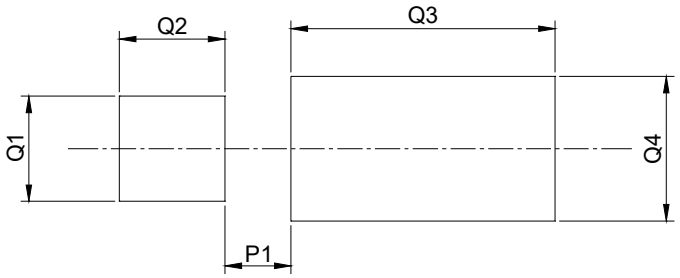


■ Outline Dimensions



SOD-323HE		
Dim	Millimeters	
	Min	Max
A	1.20	1.40
B	2.10	2.30
C	2.30	2.70
D	0.90	1.00
E1	0.55	0.75
E2	1.10	1.50
F1	0.55	0.75
F2	0.78	0.98
G	0.12	0.27

■ Suggested pad layout



SOD-323HE	
Dim	Millimeters
P1	0.50
Q1	0.80
Q2	0.80
Q3	2.00
Q4	1.10

Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website http:// www.21yangjie.com , or consult your nearest Yangjie's sales office for further assistance.