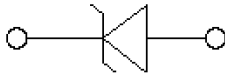
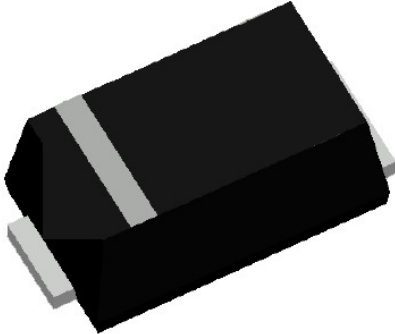


Surface Mount Transient Voltage Suppressor

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 μ s 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
- Part no. with suffix "Q" means AEC-Q101 qualified

Typical Applications

For 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, automotive, and 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 ($T_A=25^\circ\text{C}$ 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	P_D	W	$T_A=25^\circ\text{C}$	1
Peak forward surge current,	I_{FSM}	A	8.3 ms single half sine-wave unidirectional only	20
Maximum instantaneous forward voltage	V_F	V	$I_F=1\text{A}$	1.2
Operating junction	T_J	$^\circ\text{C}$		-55 to +150
Storage temperature range	T_{STG}	$^\circ\text{C}$		-55 to +150
Thermal resistance ⁽³⁾	$R_{\theta JL}$	$^\circ\text{C/W}$	Between junction and lead	20
	$R_{\theta JA}$		Between junction and Ambient	125

Notes:

- (1). Non repetitive current pulse, per Fig.2 and derated above $T_A=25^\circ\text{C}$ per Fig.3.
- (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 6.0 mm x 6.0 mm copper pad areas



SMHE SERIES

Ordering Information (Example)

PREFERRED 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°C unless otherwise noted)

Part Number	Marking Code	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 V_C @ I_{PP} (V)
		Min(V)	Max (V)	$I_T^{(1)}$ (mA)				
SMHE5.0AQ	AE	6.4	7.07	10	400	5	16.3	9.2
SMHE6.0AQ	AG	6.67	7.37	10	400	6	14.56	10.3
SMHE6.5AQ	AK	7.22	7.98	10	250	6.5	13.39	11.2
SMHE7.0AQ	AM	7.78	8.6	10	100	7	12.5	12
SMHE7.5AQ	AP	8.33	9.21	1	50	7.5	11.63	12.9
SMHE8.0AQ	AR	8.89	9.83	1	25	8	11.03	13.6
SMHE8.5AQ	AT	9.44	10.4	1	10	8.5	10.42	14.4
SMHE9.0AQ	AV	10	11.1	1	5	9	9.74	15.4
SMHE10AQ	AX	11.1	12.3	1	2.5	10	8.82	17
SMHE11AQ	AZ	12.2	13.5	1	2.5	11	8.24	18.2
SMHE12AQ	BE	13.3	14.7	1	2.5	12	7.54	19.9
SMHE13AQ	BG	14.4	15.9	1	1	13	6.98	21.5
SMHE14AQ	BK	15.6	17.2	1	1	14	6.47	23.2
SMHE15AQ	BM	16.7	18.5	1	1	15	6.15	24.4
SMHE16AQ	BP	17.8	19.7	1	1	16	5.77	26
SMHE17AQ	BR	18.9	20.9	1	1	17	5.43	27.6
SMHE18AQ	BT	20	22.1	1	1	18	5.13	29.2
SMHE19AQ	BV	21.1	23.3	1	1	19	4.90	30.6
SMHE20AQ	BX	22.2	24.5	1	1	20	4.63	32.4
SMHE22AQ	BZ	24.4	26.9	1	1	22	4.23	35.5
SMHE24AQ	CE	26.7	29.5	1	1	24	3.86	38.9
SMHE26AQ	CG	28.9	31.9	1	1	26	3.56	42.1
SMHE28AQ	CK	31.1	34.4	1	1	28	3.30	45.4
SMHE30AQ	CM	33.3	36.8	1	1	30	3.10	48.4
SMHE33AQ	CP	36.7	40.6	1	1	33	2.81	53.3
SMHE36AQ	CR	40	44.2	1	1	36	2.55	58.1
SMHE40AQ	CT	44.4	49.1	1	1	40	2.32	64.5
SMHE43AQ	CV	47.8	52.8	1	1	43	2.16	69.4
SMHE45AQ	CX	50	55.3	1	1	45	2.06	72.7
SMHE48AQ	CZ	53.3	58.9	1	1	48	1.94	77.4
SMHE51AQ	DE	56.7	62.7	1	1	51	1.82	82.4
SMHE54AQ	DG	60	66.3	1	1	54	1.72	87.1
SMHE58AQ	DK	64.4	71.2	1	1	58	1.60	93.6
SMHE60AQ	DM	66.7	73.7	1	1	60	1.54	96.8
SMHE64AQ	DP	71.1	78.6	1	1	64	1.45	103
SMHE70AQ	DR	77.8	86	1	1	70	1.33	113
SMHE75AQ	DT	83.3	92.1	1	1	75	1.24	121
SMHE78AQ	DV	86.7	95.8	1	1	78	1.19	126
SMHE80AQ	DX	88.8	97.6	1	1	80	1.16	129
SMHE85AQ	DZ	94.4	104	1	1	85	1.09	137
SMHE90AQ	EG	100	111	1	1	90	1.03	146

Notes:

(1) $t_p \leq 50ms$ Pulse test: $t_p \leq 50ms$.

(2) Surge current waveform per Fig. 2 and derated per Fig.3.



■ Characteristics(Typical)

Fig.1 Peak Pulse Power Rating Curve

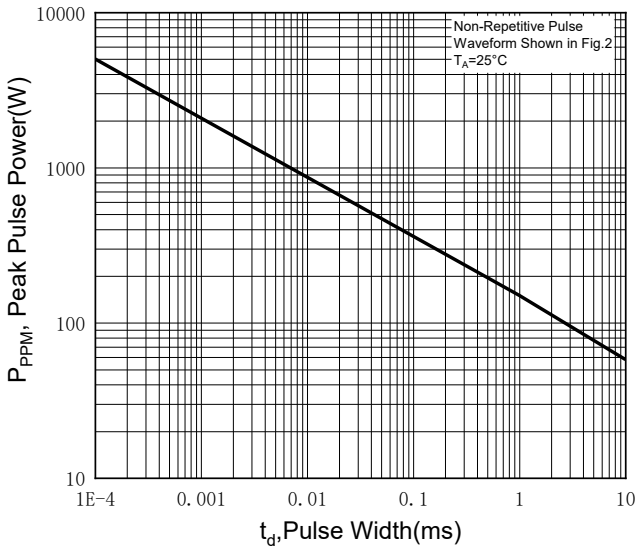


Fig.2 Pulse Waveform

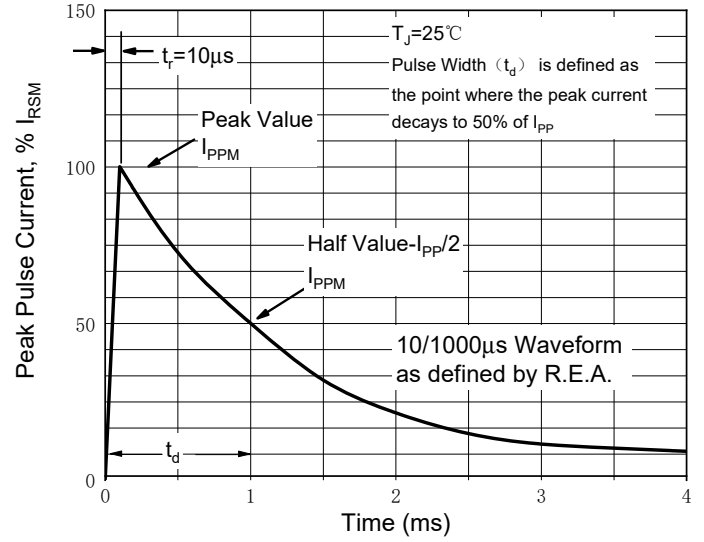


Fig.3 Pulse Power or Current vs. Initial Junction Temperature

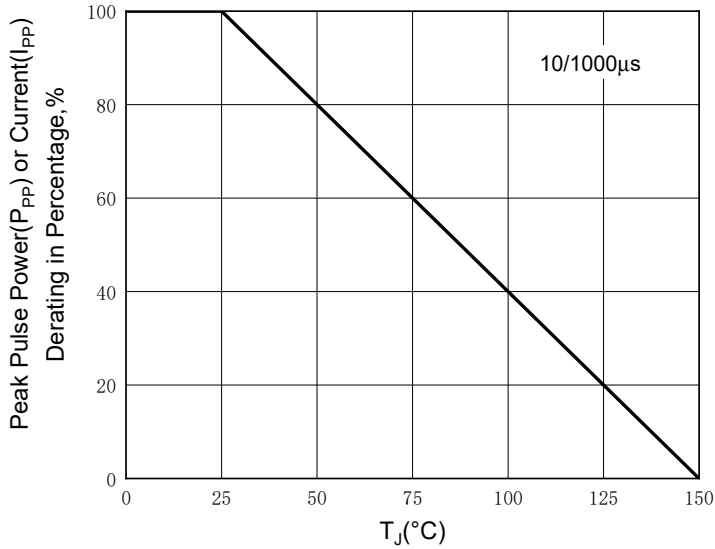
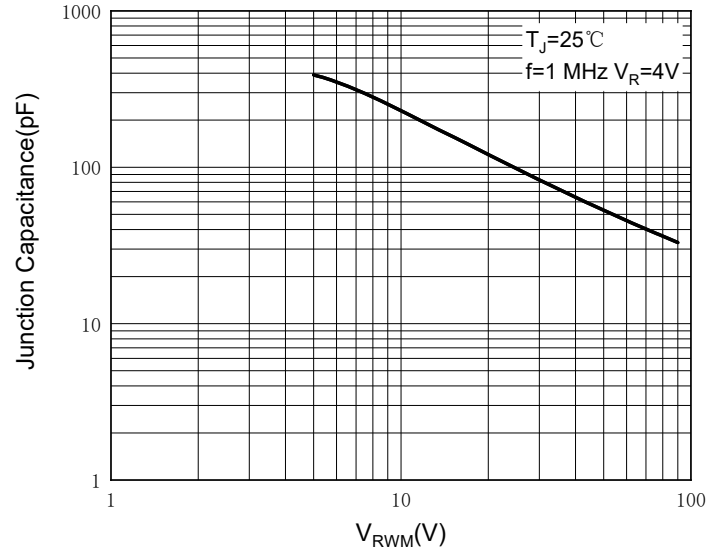


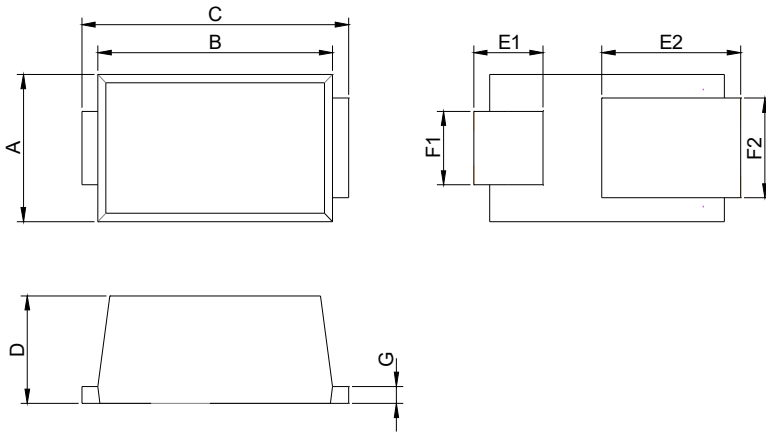
Fig.4 Typical Junction Capacitance





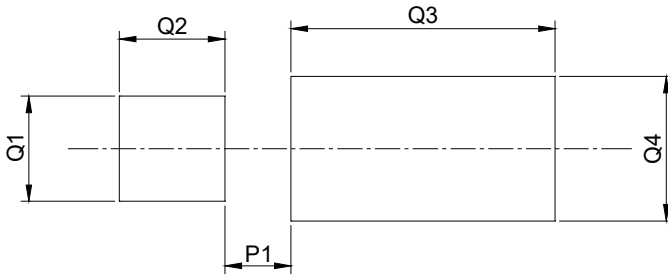
SMHE SERIES

■ 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



SMHE SERIES

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