

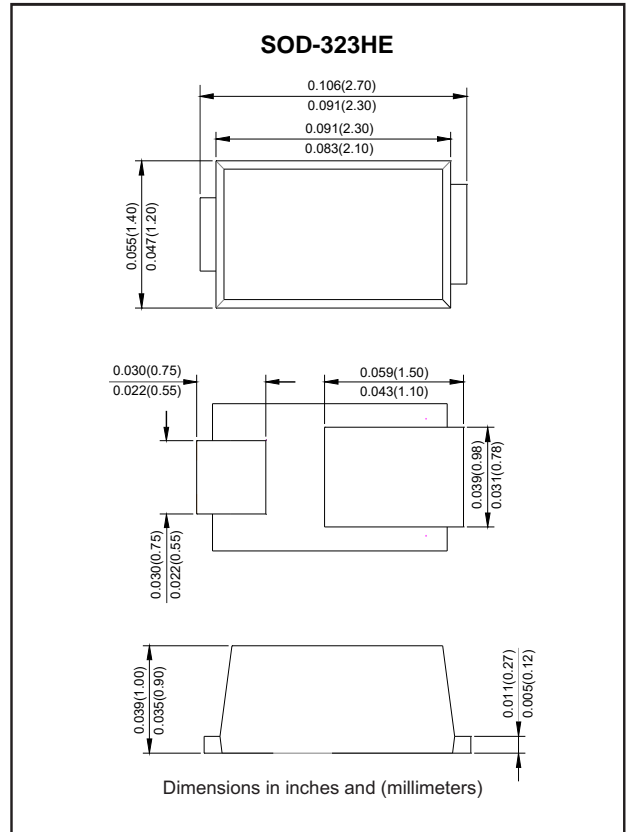
Features

- 150W peak pulse power capability with a 10/1000 μ s
- Low profile surface mounted application in order to optimize board space
- Excellent clamping capability
- Low incremental surge resistance
- Very fast response time
- Available in unidirectional
- Compliant to Halogen-free
- Suffix "-Q1" for AEC-Q101

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-323HE
- Terminals : Tin plated leads, solderable per J-STD-002 and JESD22-B102
- Polarity : Indicated by cathode band
- Mounting Position : Any

Package outline



Maximum ratings (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

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	$T_L=75^\circ\text{C}$	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}	$^\circ\text{C}$		-55 to +150
Electrostatic Discharge	ESD	KV	IEC61000-4-2 air discharge	± 30
Electrostatic Discharge			IEC61000-4-2 contact discharge	
Thermal resistance ⁽³⁾	$R_{\theta JL}$	$^\circ\text{C/W}$	Between junction and lead	100
	$R_{\theta JA}$		Between junction and Ambient	300

Notes:

(1). Non repetitive current pulse, per Fig2 and derated above $T_A=25^\circ\text{C}$ 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

Electrical characteristics (at T_A=25°C unless otherwise noted)

Part Number	Marking Code	Breakdown Voltage V _{BR} @I _T			Maximum Reverse Leakage I _R @ 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)				
SMNE5.0A-Q1	AE	6.4	7.07	10	400	5	16.3	9.2
SMNE6.0A-Q1	AG	6.67	7.37	10	400	6	14.56	10.3
SMNE6.5A-Q1	AK	7.22	7.98	10	250	6.5	13.39	11.2
SMNE7.0A-Q1	AM	7.78	8.6	10	100	7	12.5	12
SMNE7.5A-Q1	AP	8.33	9.21	1	50	7.5	11.63	12.9
SMNE8.0A-Q1	AR	8.89	9.83	1	25	8	11.03	13.6
SMNE8.5A-Q1	AT	9.44	10.4	1	10	8.5	10.42	14.4
SMNE9.0A-Q1	AV	10	11.1	1	5	9	9.74	15.4
SMNE10A-Q1	AX	11.1	12.3	1	2.5	10	8.82	17
SMNE11A-Q1	AZ	12.2	13.5	1	2.5	11	8.24	18.2
SMNE12A-Q1	BE	13.3	14.7	1	2.5	12	7.54	19.9
SMNE13A-Q1	BG	14.4	15.9	1	1	13	6.98	21.5
SMNE14A-Q1	BK	15.6	17.2	1	1	14	6.47	23.2
SMNE15A-Q1	BM	16.7	18.5	1	1	15	6.15	24.4
SMNE16A-Q1	BP	17.8	19.7	1	1	16	5.77	26
SMNE17A-Q1	BR	18.9	20.9	1	1	17	5.43	27.6
SMNE18A-Q1	BT	20	22.1	1	1	18	5.13	29.2
SMNE19A-Q1	BV	21.1	23.3	1	1	19	4.90	30.6
SMNE20A-Q1	BX	22.2	24.5	1	1	20	4.63	32.4
SMNE22A-Q1	BZ	24.4	26.9	1	1	22	4.23	35.5
SMNE24A-Q1	CE	26.7	29.5	1	1	24	3.86	38.9
SMNE26A-Q1	CG	28.9	31.9	1	1	26	3.56	42.1
SMNE28A-Q1	CK	31.1	34.4	1	1	28	3.30	45.4
SMNE30A-Q1	CM	33.3	36.8	1	1	30	3.10	48.4
SMNE33A-Q1	CP	36.7	40.6	1	1	33	2.81	53.3
SMNE36A-Q1	CR	40	44.2	1	1	36	2.55	58.1
SMNE40A-Q1	CT	44.4	49.1	1	1	40	2.32	64.5
SMNE43A-Q1	CV	47.8	52.8	1	1	43	2.16	69.4
SMNE45A-Q1	CX	50	55.3	1	1	45	2.06	72.7
SMNE48A-Q1	CZ	53.3	58.9	1	1	48	1.94	77.4
SMNE51A-Q1	DE	56.7	62.7	1	1	51	1.82	82.4
SMNE54A-Q1	DG	60	66.3	1	1	54	1.72	87.1
SMNE58A-Q1	DK	64.4	71.2	1	1	58	1.60	93.6
SMNE60A-Q1	DM	66.7	73.7	1	1	60	1.54	96.8
SMNE64A-Q1	DP	71.1	78.6	1	1	64	1.45	103
SMNE70A-Q1	DR	77.8	86	1	1	70	1.33	113
SMNE75A-Q1	DT	83.3	92.1	1	1	75	1.24	121
SMNE78A-Q1	DV	86.7	95.8	1	1	78	1.19	126
SMNE80A-Q1	DX	88.8	97.6	1	1	80	1.16	129
SMNE85A-Q1	DZ	94.4	104	1	1	85	1.09	137
SMNE90A-Q1	EG	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.



Rating and characteristic curves

FIG1: Peak Pulse Power Rating Curve

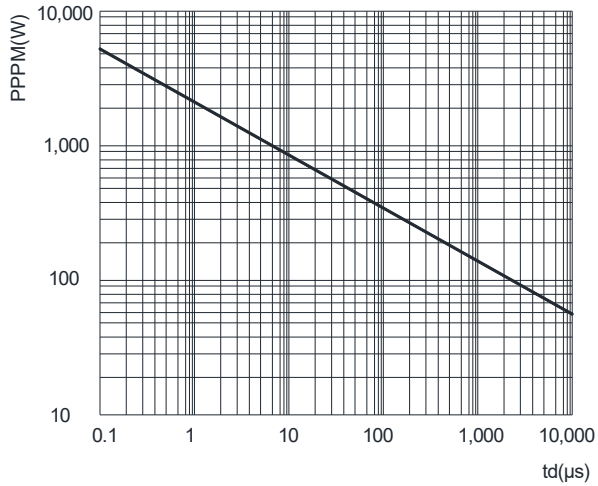


FIG2: Pulse Waveform

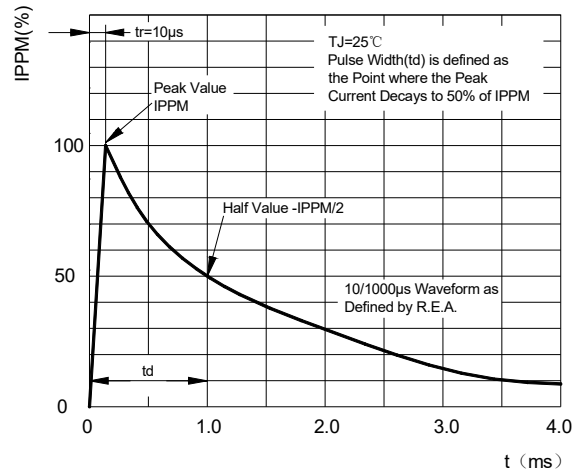


FIG3: Pulse Power or Current vs. Initial Junction Temperature

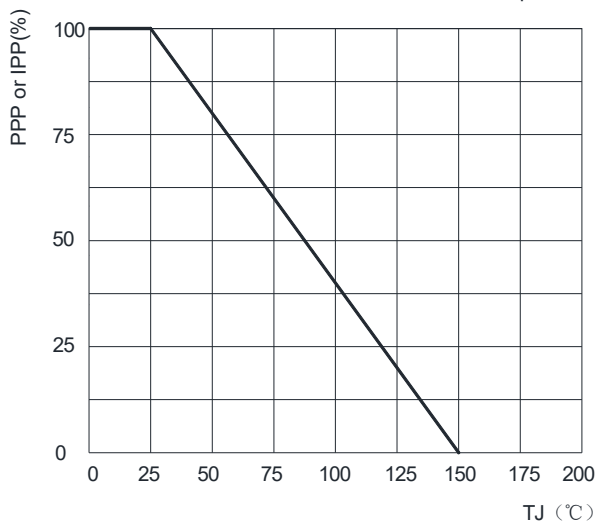
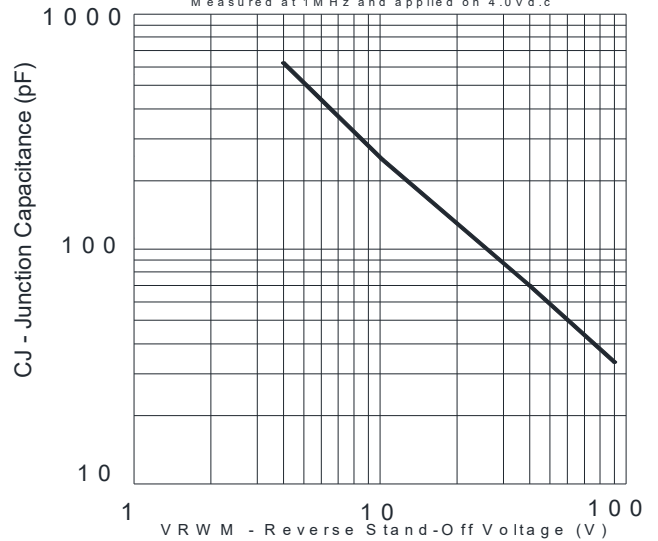





FIG 4: Typical Junction Capacitance
Measured at 1MHz and applied on 4.0V d.c



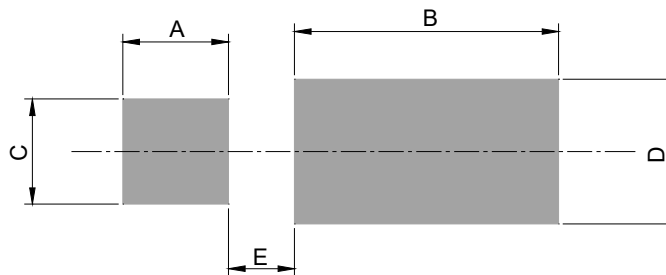
Pinning information

Pin	Simplified outline	Symbol
Uni-Directional Pin1 cathode Pin2 anode		

Marking

Type number	Example
Uni-Directional	 <p>Cathode band</p> <p>Marking code (see page 2 to page 3)</p>

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C	D	E
SOD-323HE	0.032 (0.80)	0.079 (2.00)	0.032 (0.80)	0.043 (1.10)	0.020 (0.50)