

**ESD Diode**

**Features**

- Up to 2 lines protects
- Junction capacitance (Max value:10pF)
- Peak Pulse current (8/20μs) MAX: 3A
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- Low leakage current
- Working voltages:24V
- P/N suffix V means AEC-Q101 qualified  
P/N suffix V means Halogen-free
- RoHS Compliant

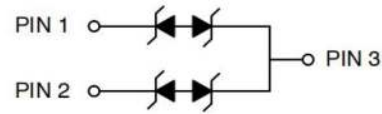
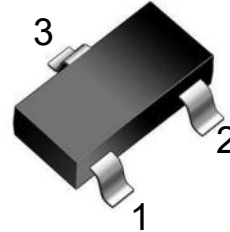
**Mechanical Characteristics**

- Package: SOT-323
- Lead Finish:Matte Tin
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020

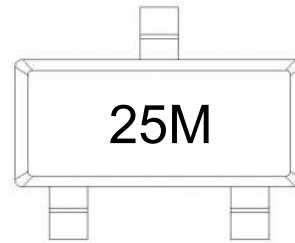
**Applications**

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Set Top Box
- Industrial Controls
- Server and Desktop PC

**Appearance&Symbol**



**Marking Information**



Marking Code 25M

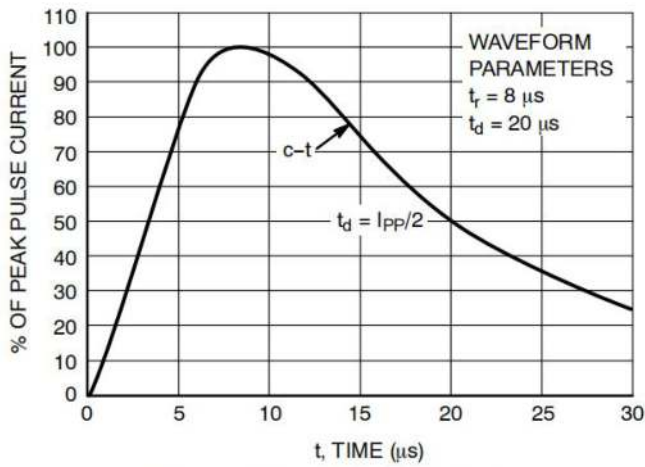
**Absolute Maximum Ratings(T=25°Cunless otherwise noted)**

Parameters	Symbol	Value	Unit
Peak Pulse Power (tp=8/20μs waveform)	P <sub>PP</sub>	150	W
Peak Pulse Current (8/20μs)	I <sub>PP</sub>	3	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V <sub>ESD</sub>	±30 ±30	KV
Operating Temperature Range	T <sub>J</sub>	-55to+150	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	°C

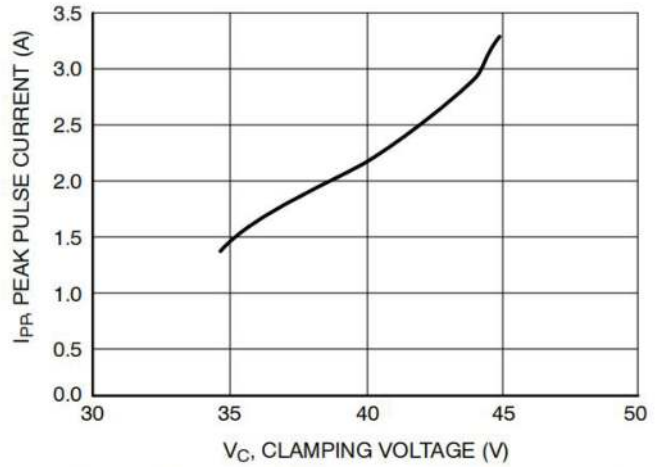
## Electrical Characteristics(T=25°Cunless otherwise noted)

Parameters	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	$V_{RWM}$		24			V
Reverse Breakdown Voltage	$V_{BR}$	$I_R = 1mA$	27	28.5	32	V
Reverse Leakage Current	$I_R$	$V_R = 24V$		15	100	nA
Clamping Voltage	$V_C$	$I_{PP} = 1A$ (8 x 20uS pulse)		33.4	36.6	V
Clamping Voltage	$V_C$	$I_{PP} = 3A$ (8 x 20uS pulse)		44	50	V
Junction Capacitance	$C_J$	$V_R = 0V, f = 1MHz$		7	10	pF
		$V_R = 5V, f = 1MHz$		4.5	6	
Diode Capacitance Matching	$\Delta C$	$V_R = 0V, f = 5MHz$		0.26	2	%

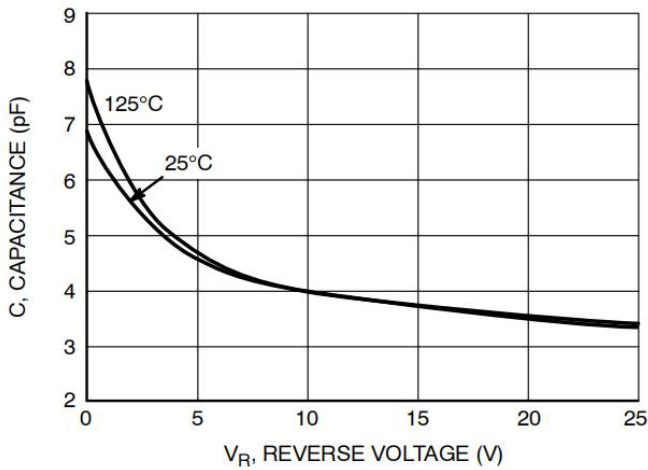
## RATING AND CHARACTERISTICS CURVES (TEPM24CMV)



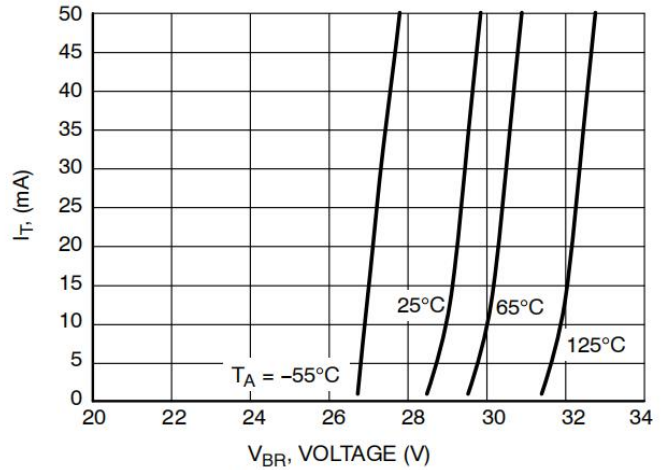
**Figure 1. Pulse Waveform, 8/20  $\mu\text{s}$**



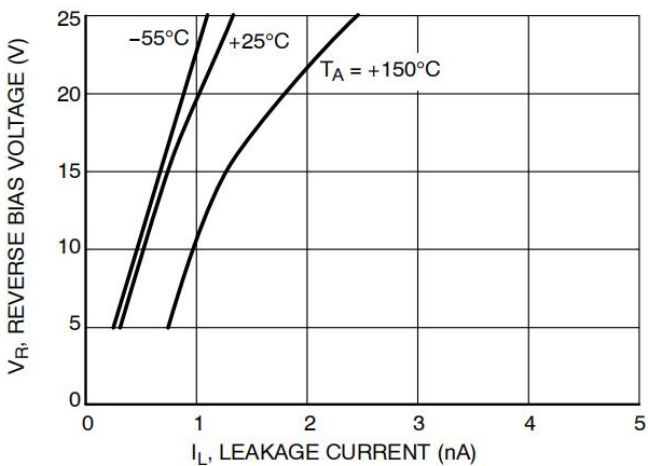
**Figure 2. Clamping Voltage vs Peak Pulse Current**



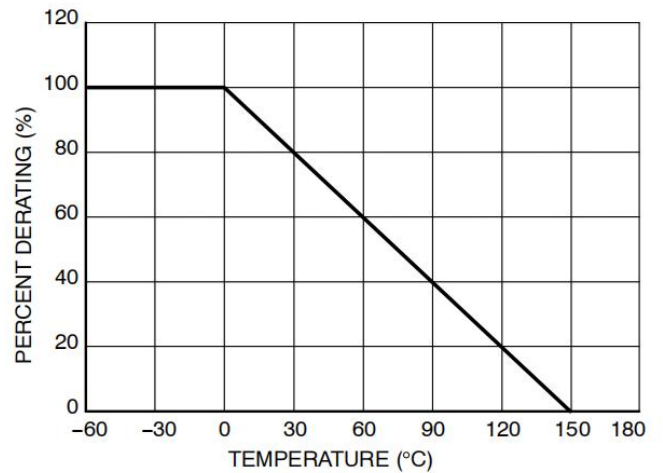
**Figure 3. Typical Junction Capacitance vs Reverse Voltage**



**Figure 4.  $V_{BR}$  versus  $I_T$  Characteristics**



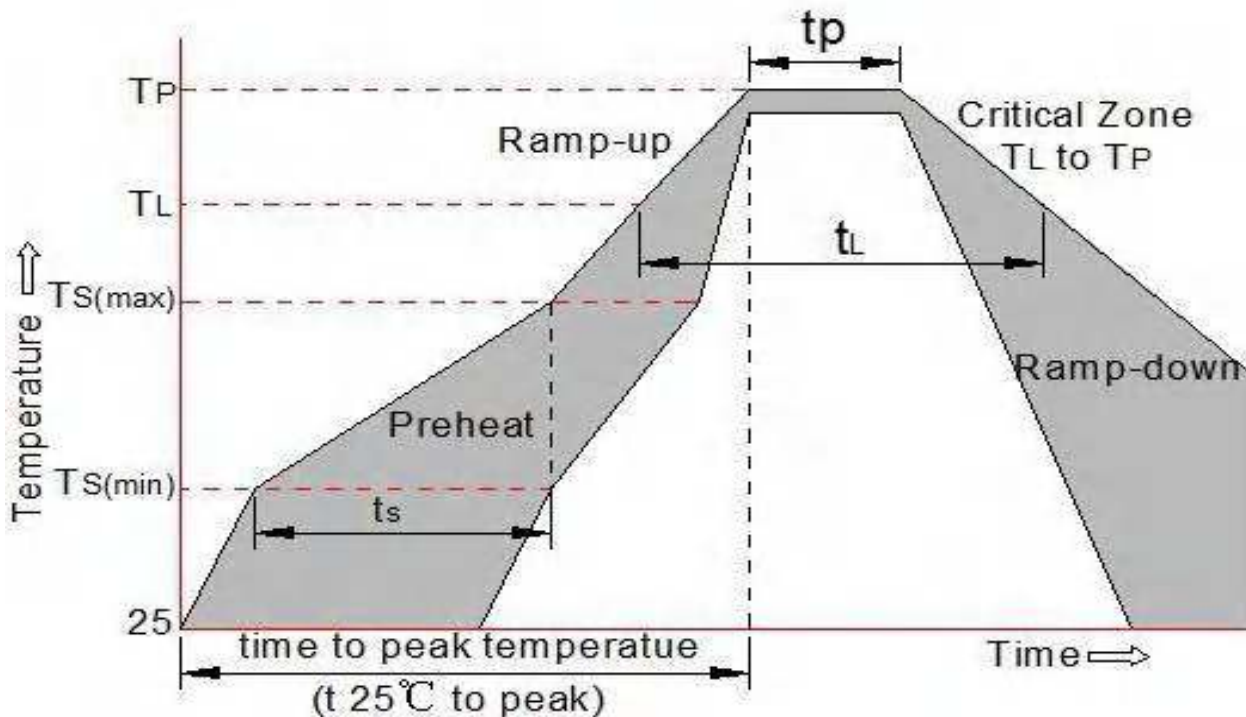
**Figure 5.  $I_R$  versus Temperature Characteristics**



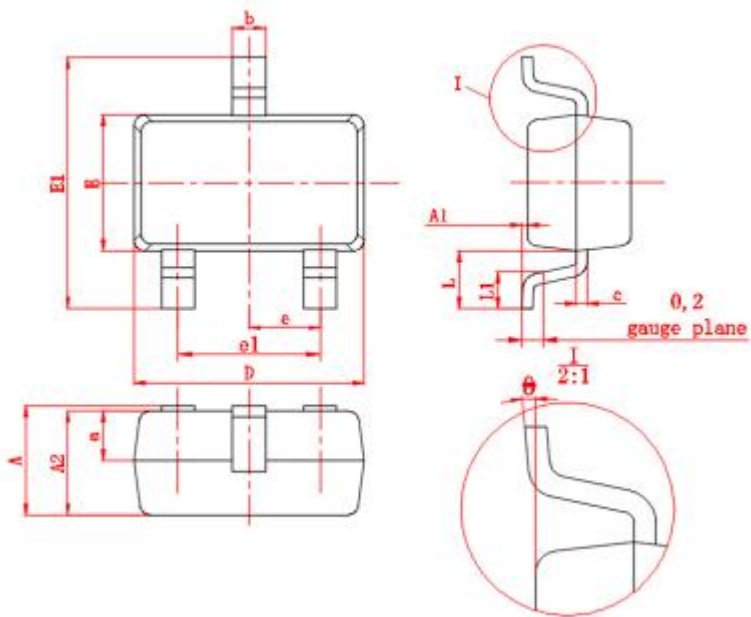
**Figure 6. Temperature Power Dissipation Derating**

## Soldering parameters

Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°C
	-Temperature Max( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) ( $t_s$ )	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature( $T_L$ ) (Liquid us)	+217°C
	-Temperature( $t_L$ )	60-150 secs.
Peak Temp ( $T_p$ )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp ( $t_p$ )		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp ( $T_p$ )		8 min. Max
Do not exceed		+260°C

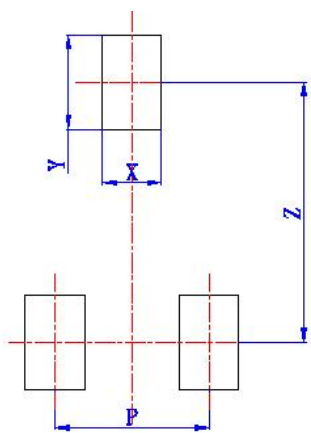


### Package mechanical data



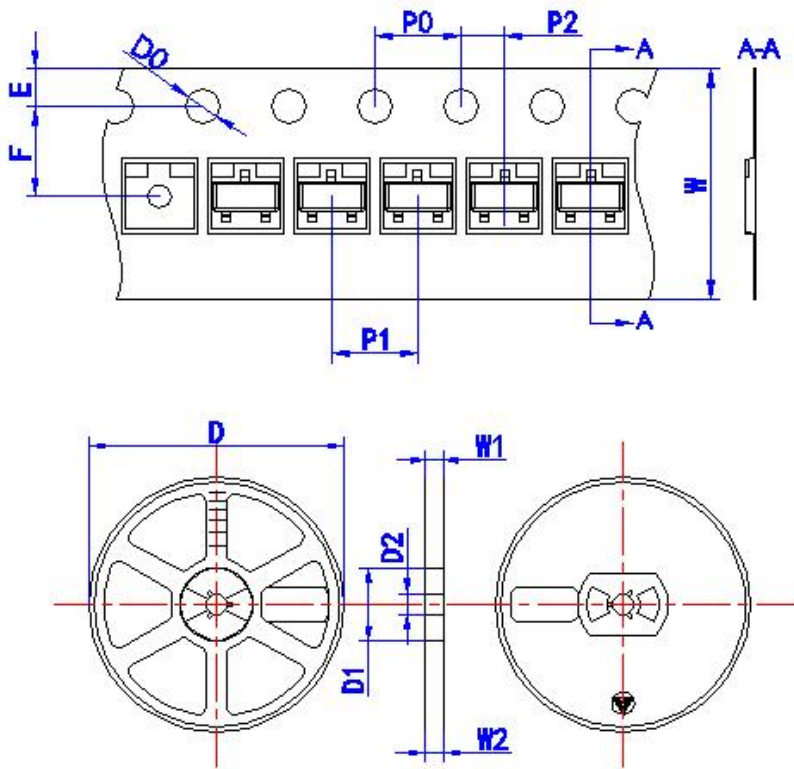
Symbol	Millimeters	
	Min	Max
A	0.9	1.1
A1	0	0.1
A2	0.9	1.0
a	(0.45)	
D	2.0	2.2
E	1.15	1.35
E1	2.15	2.45
e	(0.65)	
e1	1.2	1.4
b	0.25	0.35
c	0.08	0.15
L	(0.525)	
L1	0.26	0.46
θ	0°	8°

### Suggested Land Pattern



Symbol	Dimension in Millimeters
	Typ
X	(0.5)
Y	(0.8)
Z	(1.8)
P	(1.3)

## Tape & reel specification



Symbol	Dimension in Millimeters
<b>Tape</b>	
D0	1.50+0.10/-0.00
E	1.75±0.10
F	3.50±0.10
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
W	8.00+0.3/-0.1
<b>Reel</b>	
D	178.0±2.00
D1	54.40±1.00
D2	13.00±1.00
W1	9.50±1.00
W2	12.30±1.00

### REEL PACK

PACKAGE	PACKING CODE	REEL ( EA )	COMPONENT SPACE(mm)	TAPE SPACE (mm)	REEL DIA (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
SOT-323	-T	3,000	---	---	178	390*205*310	120,000	5.29

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