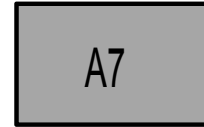
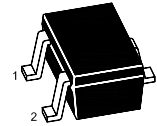


## Features

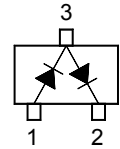
Fast Switching Speed  
Ultra-Small Surface Mount Package  
For General Purpose Switching Applications  
High Conductance



SOT-323



Equivalent Circuit



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

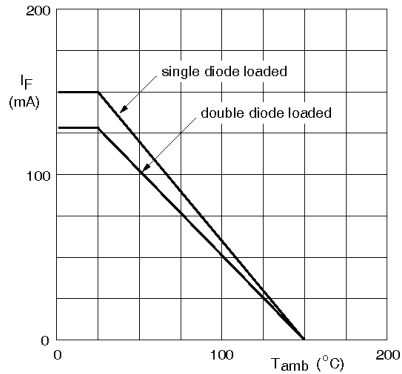
### MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted )

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$	85	V
Reverse Voltage	$V_R$	75	V
Continuous Forward Current	$I_F$	150	mA
Single Diode Load Double Diode Load		130	
Repetitive Peak Forward Current	$I_{FRM}$	500	mA
Non-Repetitive Peak Forward Surge Current	$I_{FSM}$	4	A
at $t = 1 \mu\text{s}$		1	
at $t = 1 \text{ s}$		0.5	
Total Power Dissipation	$P_{tot}$	200	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	$^\circ\text{C/W}$
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

## Electrical Characteristics ( $T_a=25^\circ\text{C}$ unless otherwise noted)

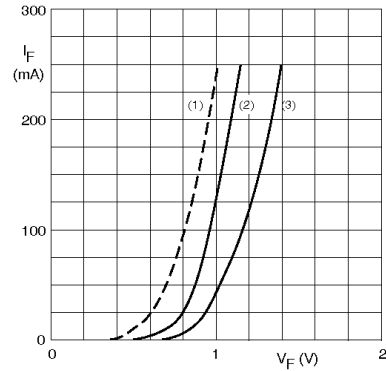
Parameter	Symbol	Max.	Unit
Forward Voltage at $I_F = 1\text{ mA}$ at $I_F = 10\text{ mA}$ at $I_F = 50\text{ mA}$ at $I_F = 150\text{ mA}$	$V_F$	0.715 0.855 1 1.25	V
Reverse Current at $V_R = 25\text{ V}$ at $V_R = 75\text{ V}$ at $V_R = 25\text{ V}, T_j = 150^\circ\text{C}$ at $V_R = 75\text{ V}, T_j = 150^\circ\text{C}$	$I_R$	30 1 30 50	nA $\mu\text{A}$ $\mu\text{A}$ $\mu\text{A}$
Diode Capacitance at $V_R = 0, f = 1\text{ MHz}$	$C_d$	1.5	pF
Reverse Recovery Time at $I_F = I_R = 10\text{ mA}, I_{rr} = 0.1 \times I_R, R_L = 100\ \Omega$	$t_{rr}$	4	ns

RATING AND CHARACTERISTIC CURVES



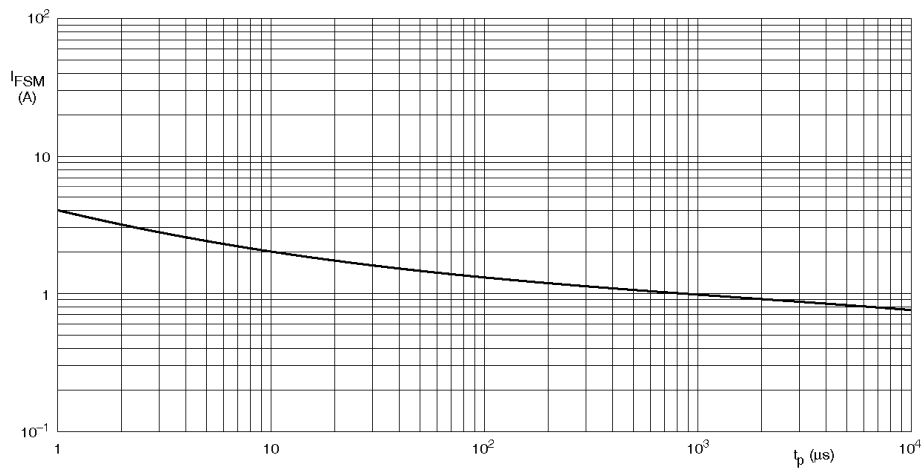
Device mounted on an FR4 printed-circuit board.

Maximum permissible continuous forward current as a function of ambient temperature.



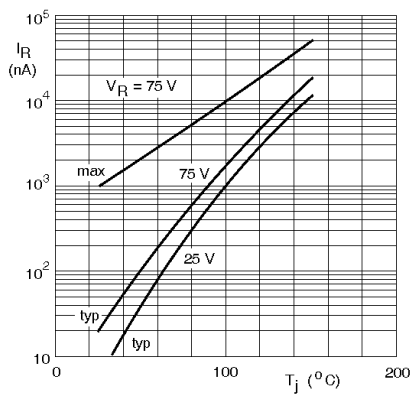
- (1)  $T_j = 150\text{ }^\circ\text{C}$ ; typical values.
- (2)  $T_j = 25\text{ }^\circ\text{C}$ ; typical values.
- (3)  $T_j = 25\text{ }^\circ\text{C}$ ; maximum values.

Forward current as a function of forward voltage.

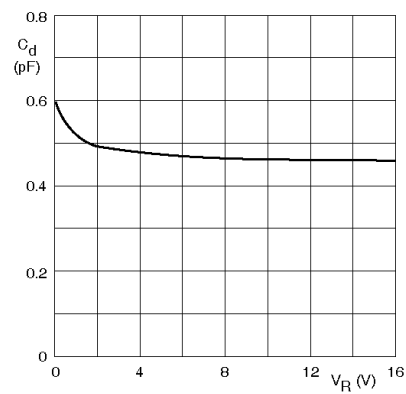


Based on square wave currents.  
 $T_j = 25\text{ }^\circ\text{C}$  prior to surge.

Maximum permissible non-repetitive peak forward current as a function of pulse duration.



Reverse current as a function of junction temperature.

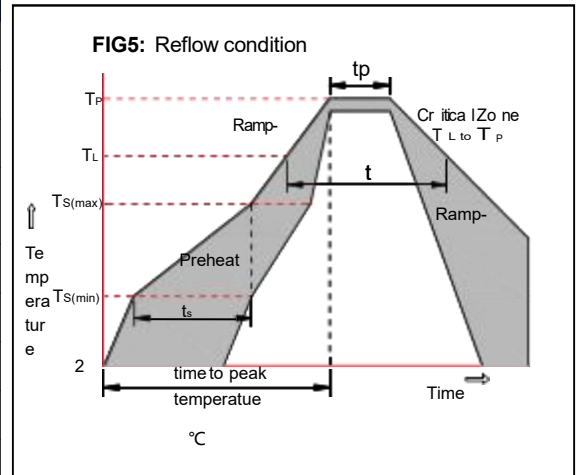


$f = 1\text{ MHz}$ ;  $T_j = 25\text{ }^\circ\text{C}$ .

Diode capacitance as a function of reverse voltage; typical values.

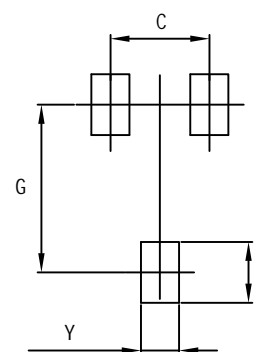
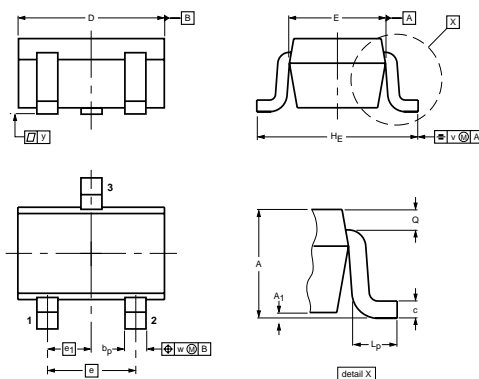
## Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150 °C
	-Temperature Max( $T_{s(max)}$ )	+200 °C
	-Time (Min to Max) (ts)	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 Dimensions & Suggested Pad Layout

### SOT-323

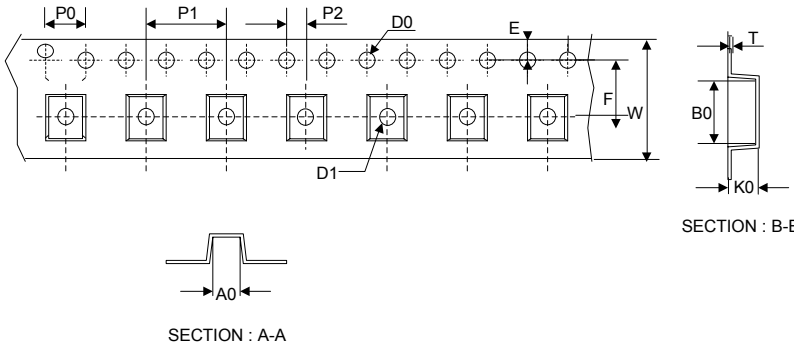
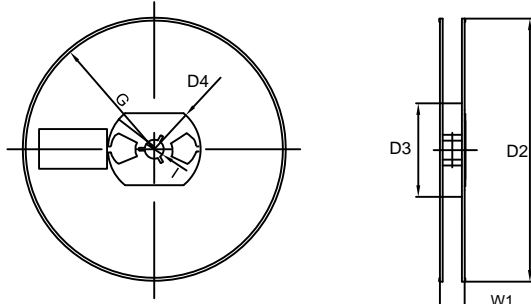


Dimensions	Value (in mm)
C	1.30
G	2.00
X	0.90
Y	0.65

DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

Tape & reel specification

Tape	Symbol	Dimension (mm)
	P0	4.00±0.20
	P1	4.00±0.20
	P2	2.00±0.20
	D0	1.55±0.20
	D1	1.00±0.20
	E	1.55±0.25
	F	3.60±0.20
	W	8.00±0.20
	A0	2.50±0.20
	B0	2.60±0.20
K0	1.40±0.20	
T	0.20±0.20	
<p>7" Reel</p> 	D2	177.0±5.0
	D3	55Min.
	D4	R24.6±2.0
	G	R82.0±2.0
	I	13.0±2.0
	W1	10.20±3.0
	Quantity: 3000PCS	