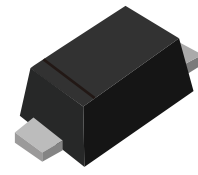


FEATURES

- High switching speed: $t_{rr} \leq 50\text{ns}$
- High reverse voltage: $V_R \leq 300\text{V}$
- Repetitive peak forward current: $I_{FRM} \leq 1\text{A}$
- Ultra small SMD plastic package
- High-speed & High-voltage switching



SOD-523



Marking



Schematic Symbol

MECHANICAL DATA

- SOD-523 Small Outline Plastic Package
- Polarity: Color band denotes cathode end
- Mounting Position: Any

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Reverse Voltage	V_R	300	V
Repetitive Peak Reverse Voltage	V_{RRM}	300	V
Power Dissipation	P_d	500	mW
Thermal Resistance From Junction to Ambient	$R_{\theta JA}$	500	$^\circ\text{C}/\text{W}$
Forward Current	I_F	250	mA
Peak Forward Surge Current@ $t_p=1\mu\text{s}$; $T_A=25^\circ\text{C}$	I_{FSM}	4.5	A
Repetitive Peak Forward Current@ $t_p=1\text{ms}$; $\delta = 0.25$	I_{FRM}	1	A
Operating Junction Temperature Range	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65 to 150	$^\circ\text{C}$

Valid provided that electrodes are kept at ambient temperature.

ELECTRICAL CHARACTERISTICS($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Breakdown Voltage	B_V	$I_R=100\mu\text{A}$	300	340		V
Reverse Leakage Current	I_R	$V_R=250\text{V}, @25^{\circ}\text{C}$		30	150	nA
		$V_R=250\text{V}, @150^{\circ}\text{C}$		40	100	μA
Forward Voltage	V_F	$I_F=100\text{mA}; t_p = 300\mu\text{s};$ $\delta = 0.02; \text{pulsed};$ $T_{amb} = 25^{\circ}\text{C}$		0.95	1.1	V
Capacitance	C_J	$V_R=0\text{V}, f=1\text{MHz}, @25^{\circ}\text{C}$		0.4	5	pF
Reverse Recovery Time	t_{rr}	$I_F=I_R=30\text{mA}, R_L=100\Omega,$ $I_R(\text{meas}) = 3\text{mA}; @25^{\circ}\text{C}$		16	50	nS

CHARACTERISTIC CURVES

Fig.1 Transient Thermal Impedance From Junction to Ambient as A Function of Pulse Duration; Typical Values

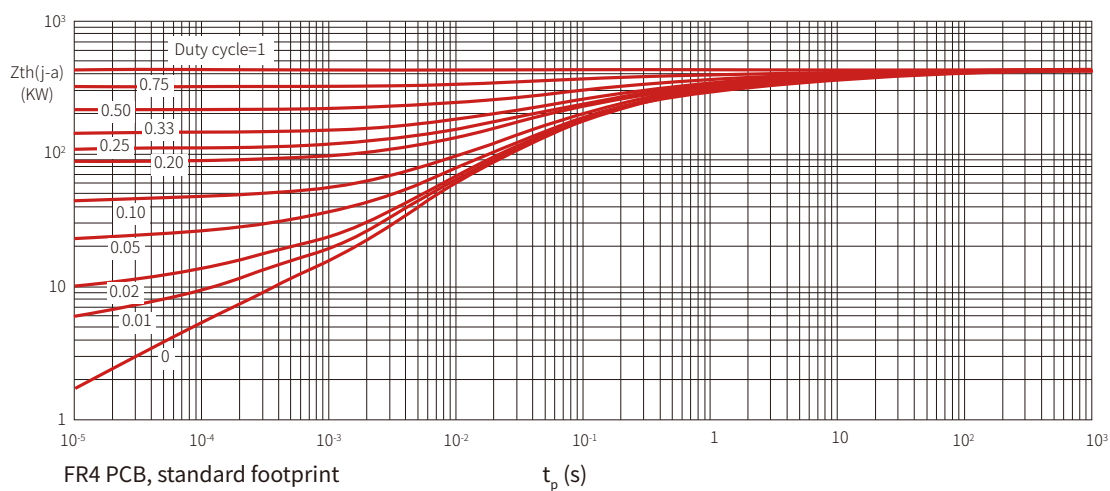


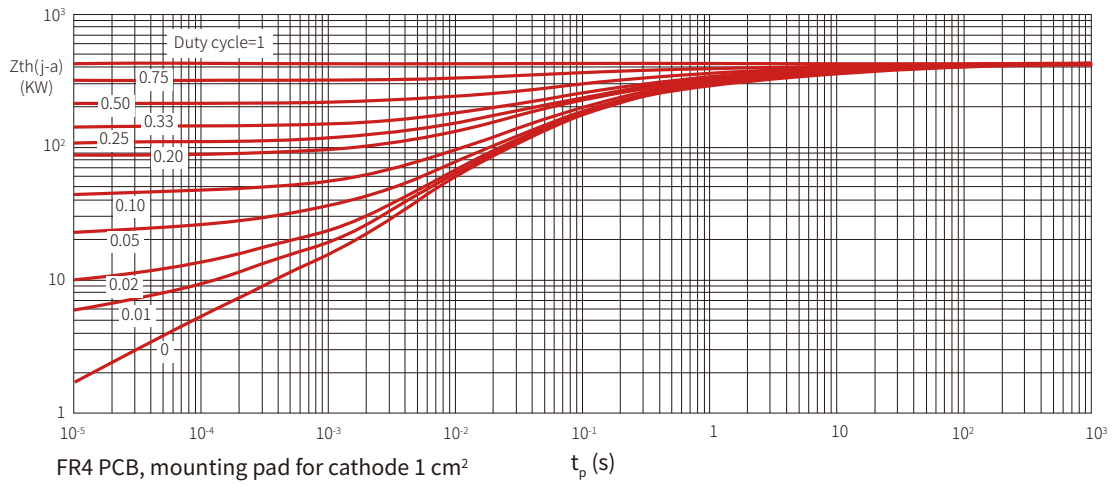
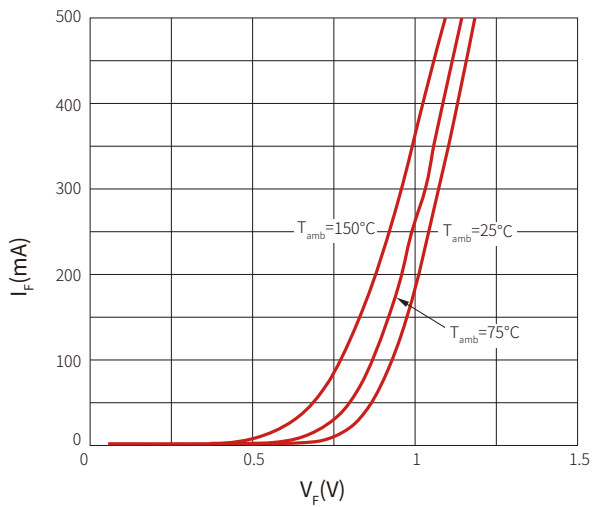
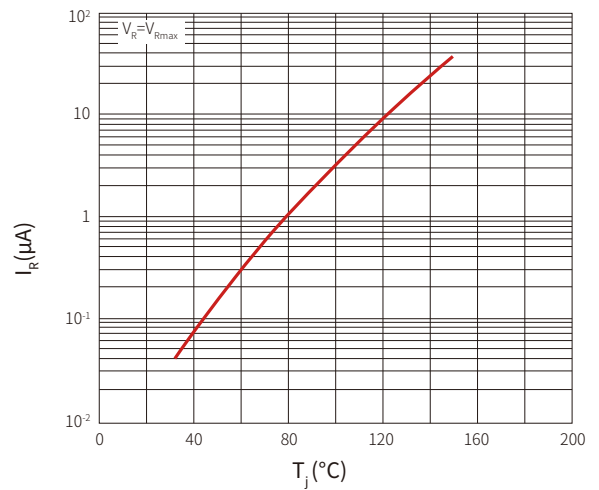
Fig.2 Transient Thermal Impedance From Junction to Ambient as A Function of Pulse Duration; Typical Values

Fig.3 Forward Current as a function of forward voltage; Typical Values

Fig.4 Reverse Current as a function of junction temperature; Typical Values


Fig.5 Forward Current as a function of ambient temperature; derating curve

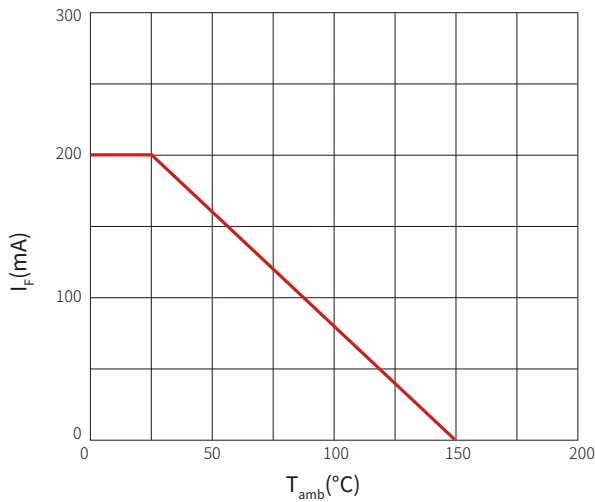


Fig.6 Diode capacitance as a function of reverse voltage; Typical Values

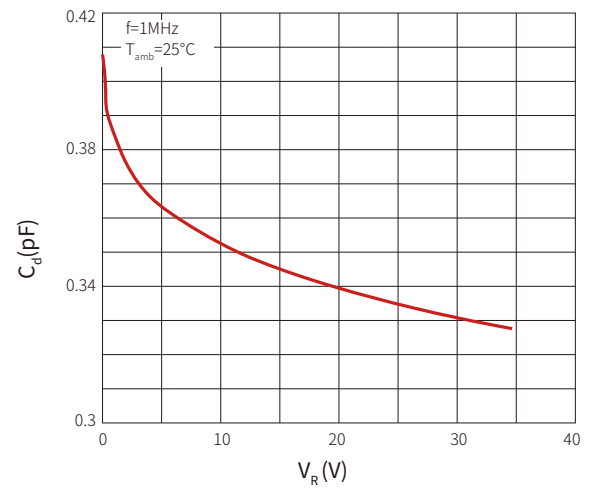


Fig.7 Nor-repetitive peak forward current as a function of pulse duration; maximum values

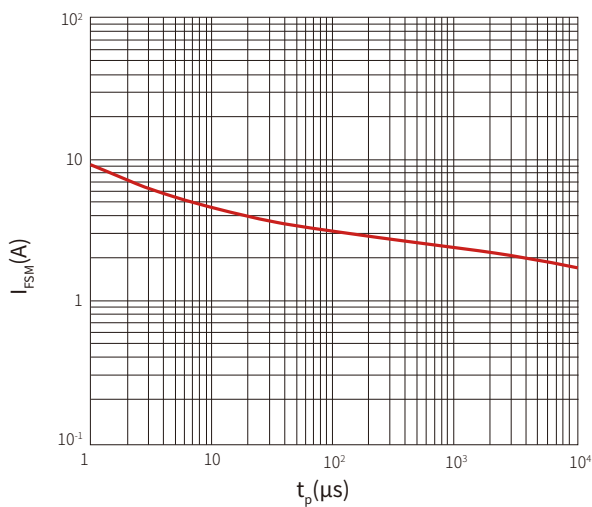
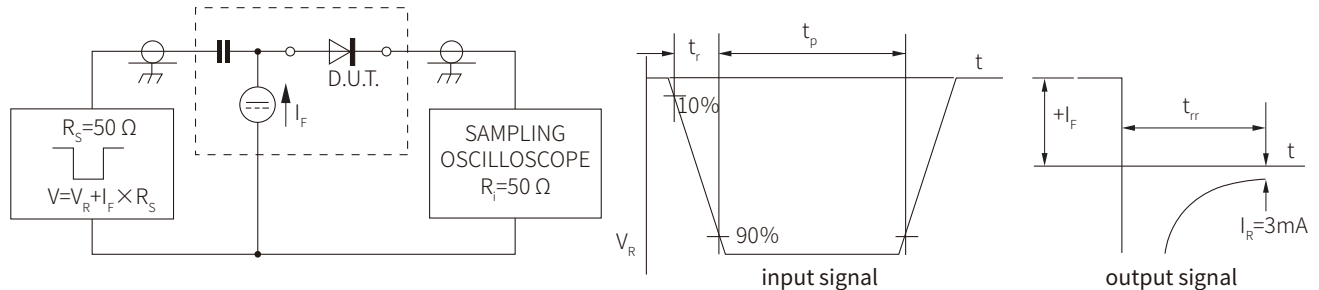
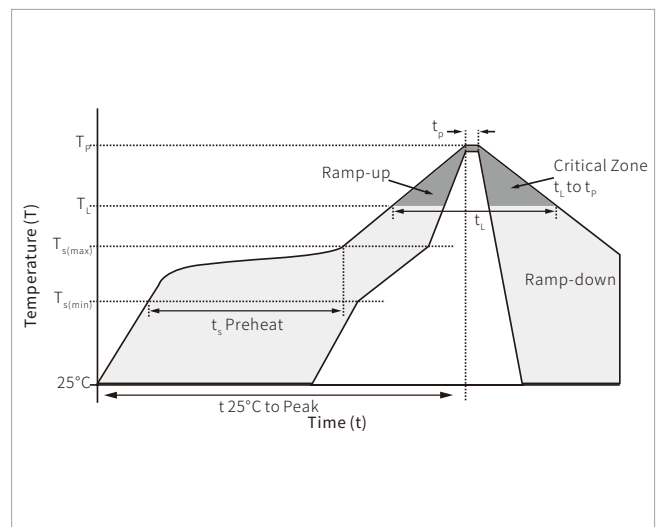


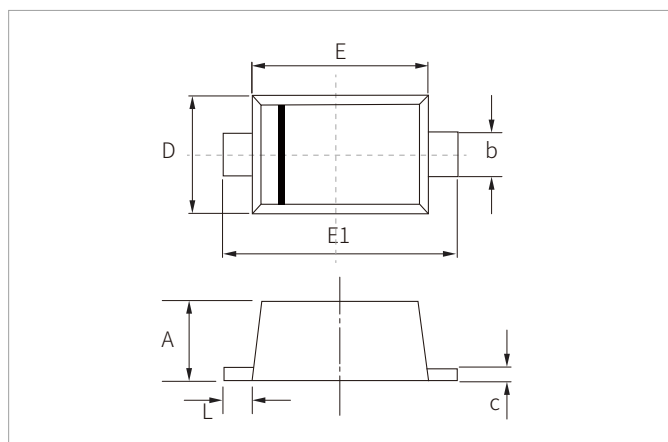
Fig.8 Reverse recovery time test circuit and waveforms


SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C

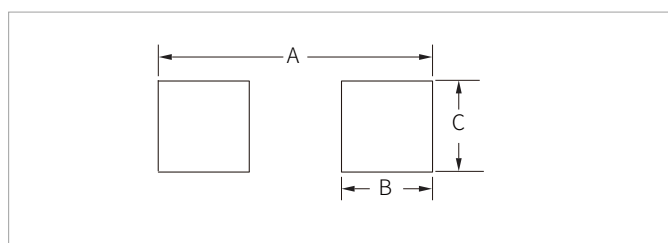


SOD-523 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.50	0.80	0.020	0.031
b	0.25	0.35	0.010	0.014
c	0.07	0.20	0.003	0.008
D	0.70	0.90	0.028	0.035
E	1.10	1.30	0.043	0.051
E1	1.50	1.70	0.059	0.067
L	0.15	0.25	0.006	0.010

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
	Min.	Min.
A	2.00	0.0787
B	0.60	0.0236
C	0.70	0.0276

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
BAS521	SOD-523	3000PCS	7"

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By QR Code

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