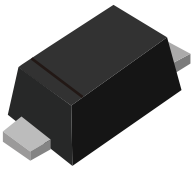
BAS521

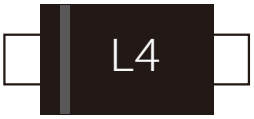
Surface Mount Fast Switching Diode

FEATURES

- High switching speed: trr ⩽50ns
- High reverse voltage: VR ⩽300V
- Repetitive peak forward current: IFRM ⩽1A
- 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°C)

Parameter	Symbol	Value	Unit
Reverse Voltage	V_R	300	V
Repetitive Peak Reverse Voltage	V_{RRM}	300	V
Power Dissipation	Pd	500	mW
Thermal Resistance From Junction to Ambient	$R_{\theta JA}$	500	°C/W
Foward Current	I_F	250	mA
Peak Forward Surge Current@tp=1us; TA=25°C	I_{FSM}	4.5	A
Repetitive Peak Forward Current@tp=1ms; δ = 0.25	I_{FRM}	1	A
Operating Junction Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-65 to 150	°C

Valid provided that electrodes are kept at ambient temperature.

ELECTRICAL CHARACTERISTICS(T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Breakdown Voltage	B_V	I_R=100μA	300	340		V
Reverse Leakage Current	I_R	V_R=250V,@25 °C		30	150	nA
		V_R=250V,@150 °C		40	100	μA
Forward Voltage	V_F	I_F=100mA; tp = 300 μs; δ = 0.02; pulsed; Tamb = 25 °C		0.95	1.1	V
Capacitance	C_J	V_R=0V, f=1MHz,@25 °C		0.4	5	pF
Reverse Recovery Time	t_{rr}	I_F= I_R=30mA,R_L=100Ω , IR(meas) = 3mA; @25 °C		16	50	nS

CHARACTERISTIC CURVES

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

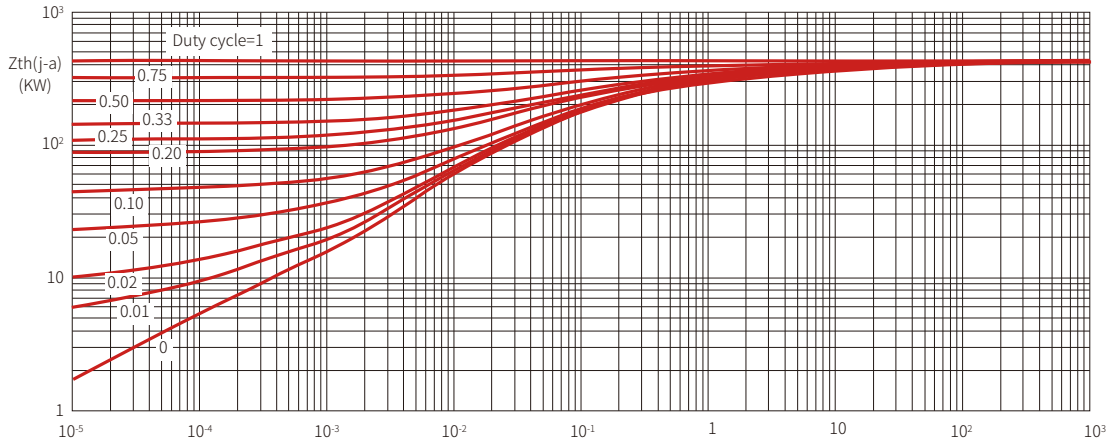
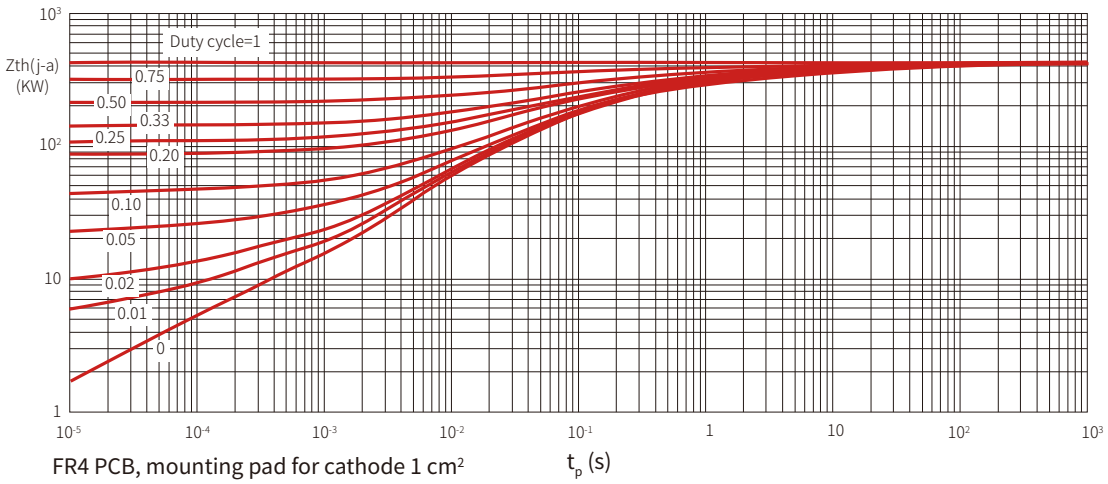


Fig.2 Transient Thermal Impedance From Junction to Ambiemt as A Function of Pulse Duration; Typical Values



FR4 PCB, mounting pad for cathode 1 cm²

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

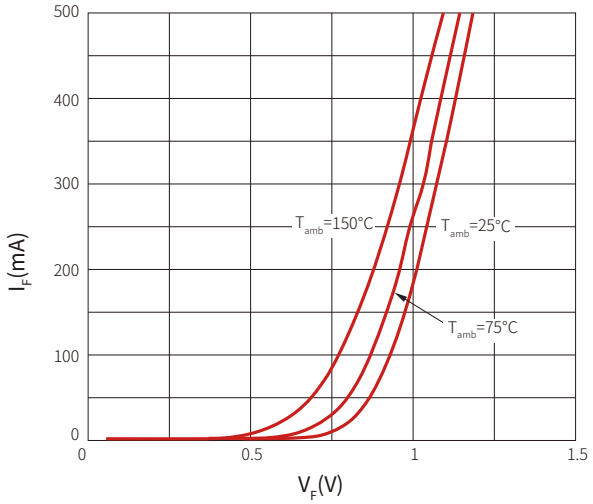


Fig.4 Reverse Current as a function of junction temperature; Typical Values

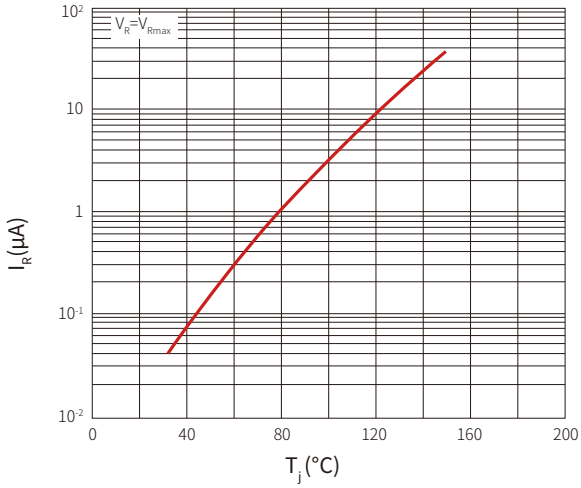


Fig.5 Forward Current as a function of ambient temperature; derating curve

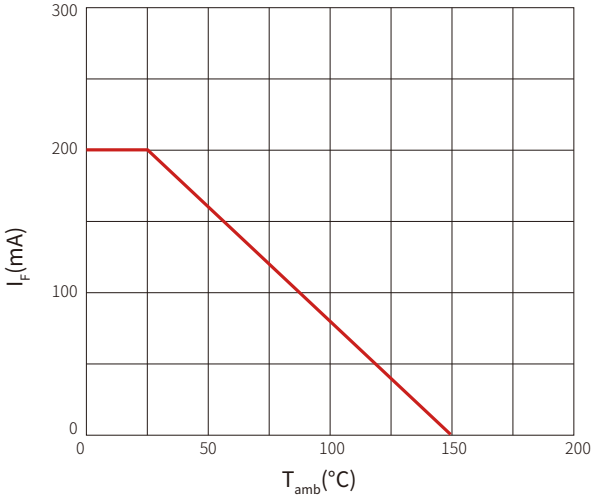


Fig.6 Diode capacitance as a function of reverse voltage; Typical Values

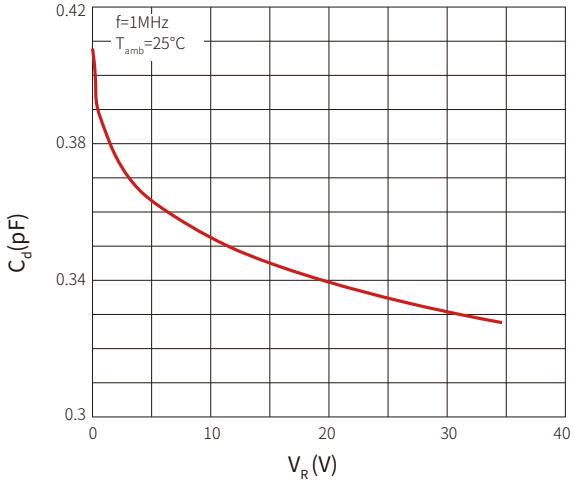


Fig.7 Nor-repetitive peak forward current as a function of pulse duration;maximum values

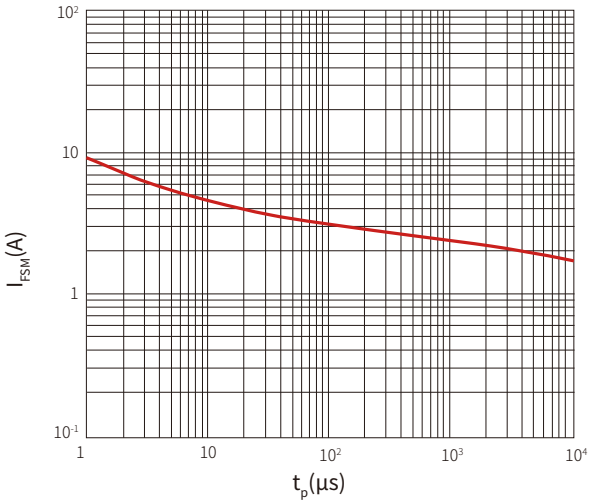
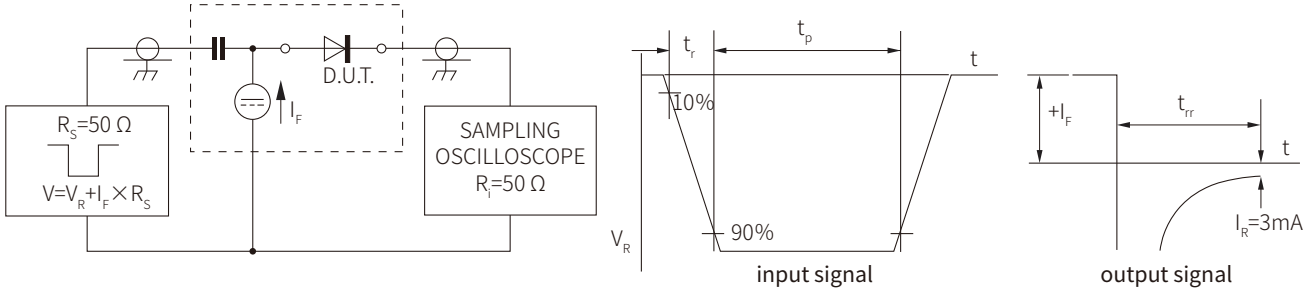
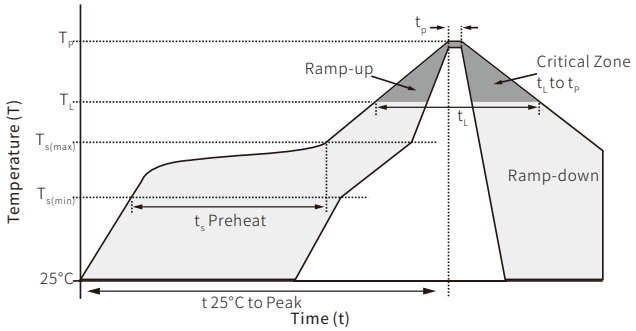


Fig.8 Reverse recovery time test circuit and waveforms

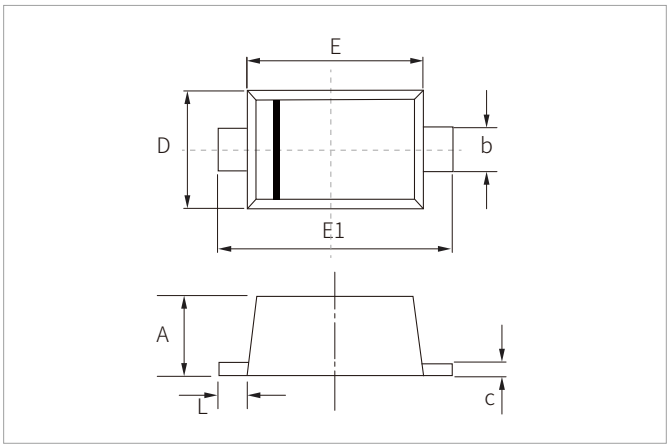


SOLDERING PARAMETERS

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

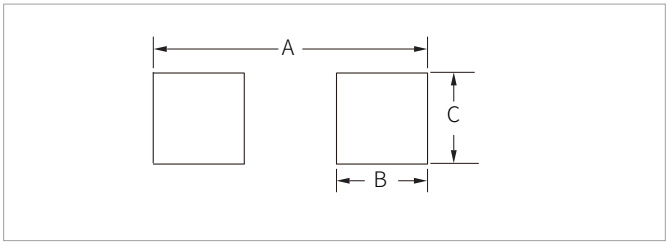


SOD-523 PACKAGE INFORMATION



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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