

Features

- Multilayer Metal -Silicon Potential Structure
- High Current Capability, High Efficiency
- High Junction Temperature Capability
- Low Leakage Current
- RoHs Product



SOD-523

Applications

- Low current rectification
- Reverse polarity protection
- Switch Mode Power Supply (SMPS)
- High efficiency DC-to-DC conversion
- Low power consumption applications



Absolute Maximum Ratings

PARAMETER	SYMBOL	VALUE	UNIT
Peak reverse voltage	VR	30	V
Average forward rectified current	IF(AV)	0.2	A
Non-repetitive Peak Forward Surge Current @t=8.3ms Half-sine wave	IFSM	1.0	A
Power Dissipation (1)	PD	275	mW
Junction Temperature	Tj	150	°C
Storage temperature range	TSTG	-55 ~+150	°C
Typical thermal resistance	RθJA	455	°C /W

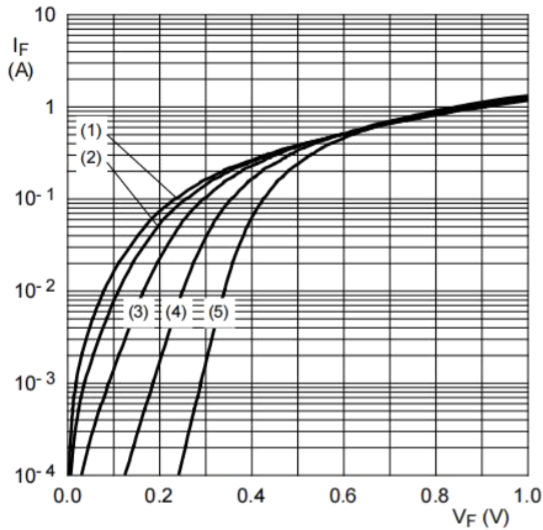
Note:1,Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

Electrical Characteristics (TA=25°C unless otherwise specified)

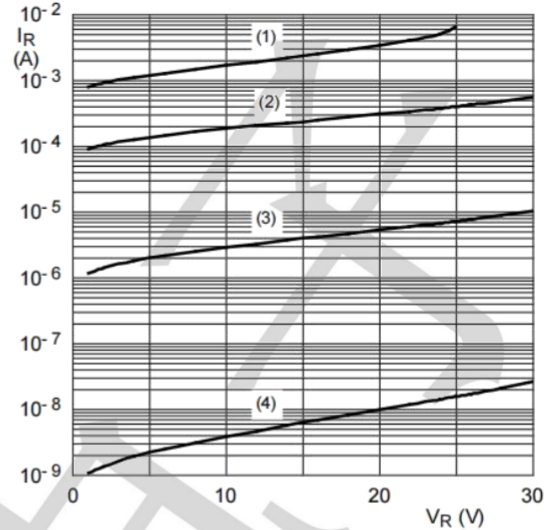
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse current	IR	VR=10V	--	2.5	30	uA
Forward voltage	VF	IF=0.1mA (2)	--	130	190	mV
		IF=1mA (2)	--	190	250	mV
		IF=10mA (2)	--	255	300	mV
		IF=100mA (2)	--	355	410	mV
		IF=200mA (2)	--	420	500	mV
Total Capacitance	CT	VR = 0V, f = 1 MHz	--	20	25	pF

Note:2,ulsed test: tp ≤ 300 μs; δ ≤ 0.02

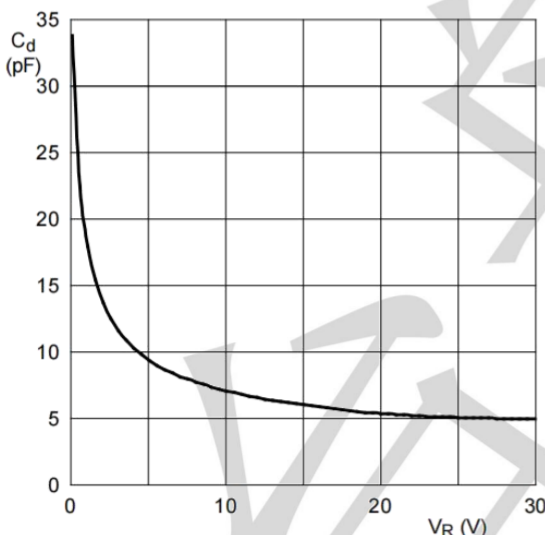
Typical Electrical Characteristic Curves



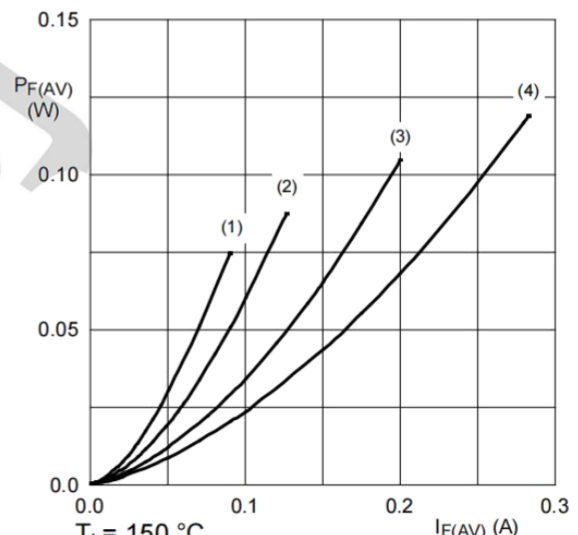
Forward current as a function of forward voltage; typical values



Reverse current as a function of reverse voltage; typical values

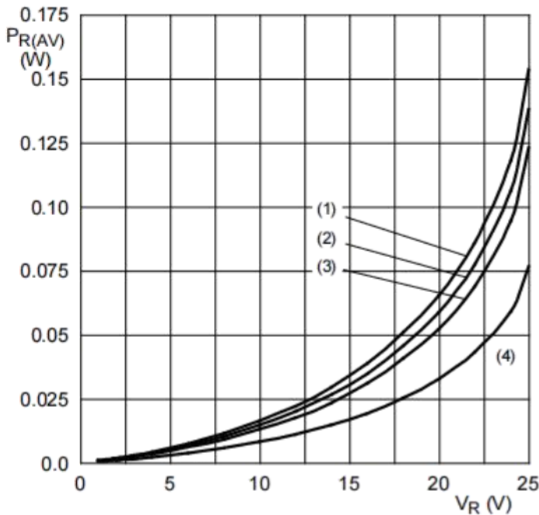


Diode capacitance as a function of reverse voltage; typical values



Average forward power dissipation as a function of average forward current; typical values

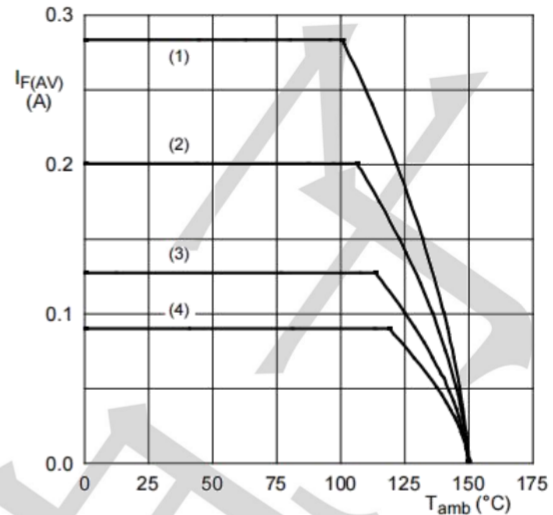
Typical Electrical Characteristic Curves



$T_j = 125\text{ }^{\circ}\text{C}$

- (1) $\delta = 1$
- (2) $\delta = 0.9$
- (3) $\delta = 0.8$
- (4) $\delta = 0.5$

Average reverse power dissipation as a function of reverse voltage; typical values

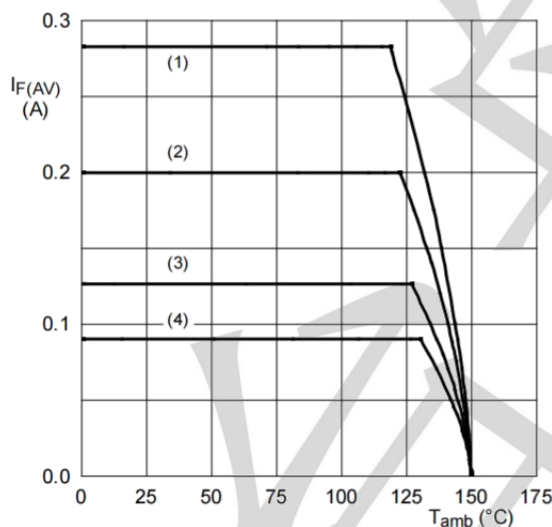


FR4 PCB, standard footprint

$T_j = 150\text{ }^{\circ}\text{C}$

- (1) $\delta = 1$; DC
- (2) $\delta = 0.5$; $f = 20\text{ kHz}$
- (3) $\delta = 0.2$; $f = 20\text{ kHz}$
- (4) $\delta = 0.1$; $f = 20\text{ kHz}$

Average forward current as a function of ambient temperature; typical values

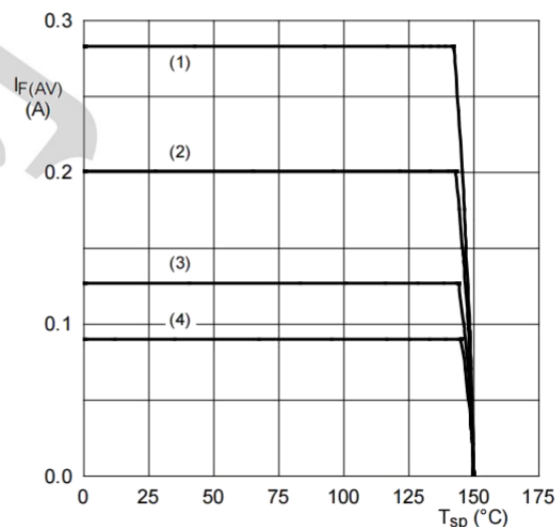


FR4 PCB, mounting pad for cathode 1 cm^2

$T_j = 150\text{ }^{\circ}\text{C}$

- (1) $\delta = 1$; DC
- (2) $\delta = 0.5$; $f = 20\text{ kHz}$
- (3) $\delta = 0.2$; $f = 20\text{ kHz}$
- (4) $\delta = 0.1$; $f = 20\text{ kHz}$

Average forward current as a function of ambient temperature; typical values



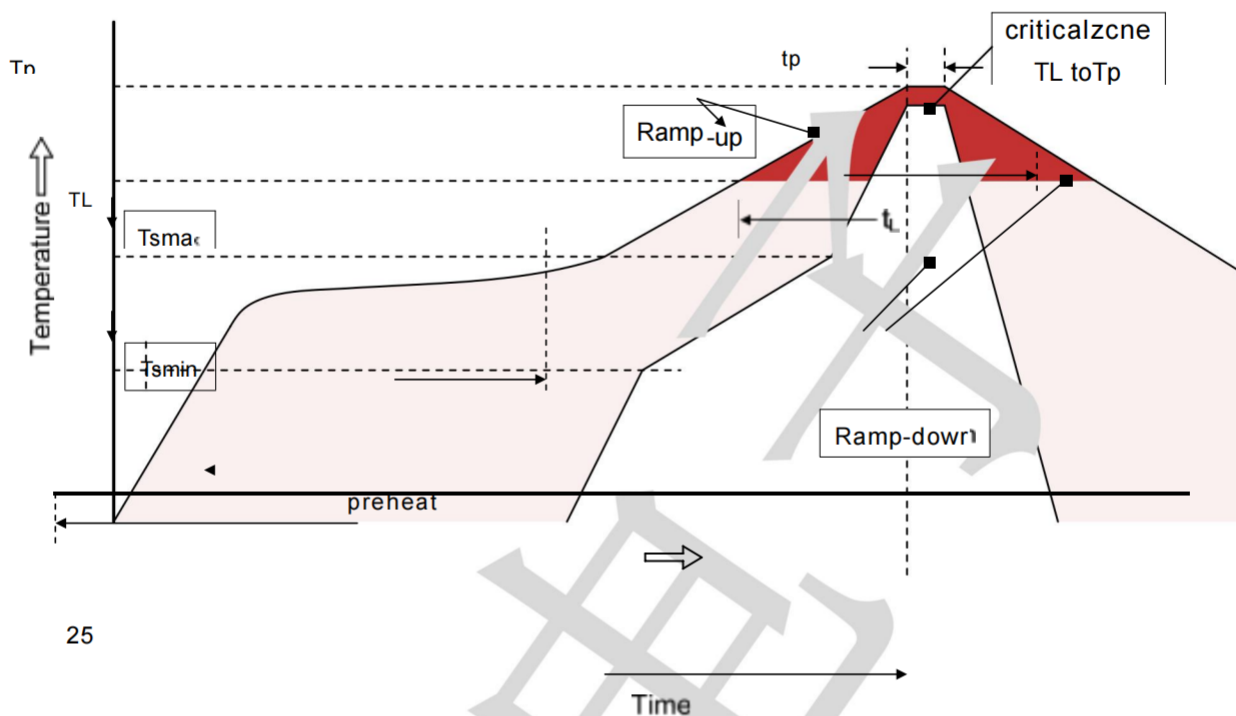
$T_j = 150\text{ }^{\circ}\text{C}$

- (1) $\delta = 1$; DC
- (2) $\delta = 0.5$; $f = 20\text{ kHz}$
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Average forward current as a function of solder point temperature; typical values

Recommended Soldering Conditions

Reflow Soldering



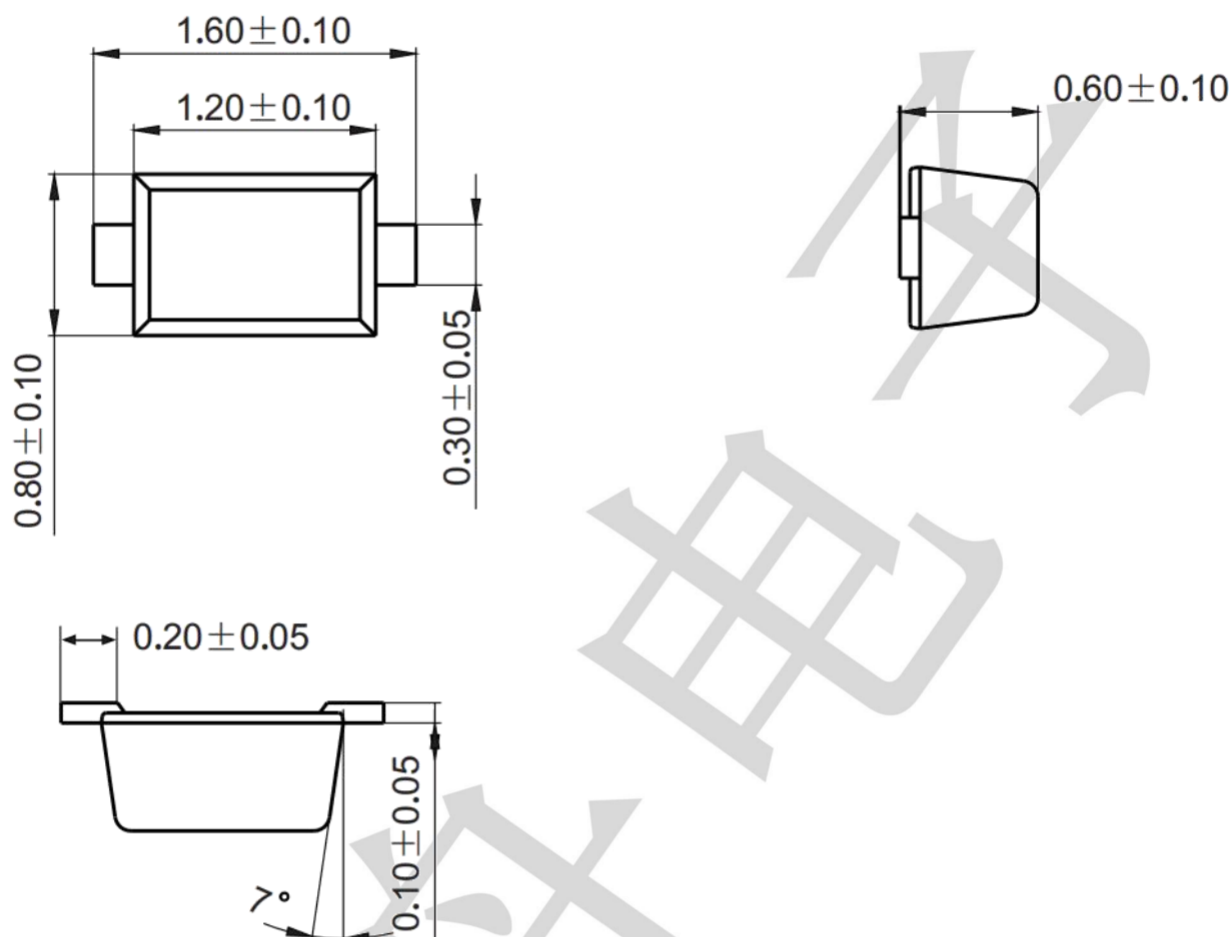
25

Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat	
-Temperature Min (T_{Smin})	150°C
-Temperature Max (T_{Smax})	200°C
-Time (min to max) (t_s)	60-180 seconds
T_{Smax} to T_L	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (T_L)	217°C
-Time (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	8 minutes max.

Package Outline Dimensions (unit: mm)

SOD-523



Mounting Pad Layout (unit: mm)

