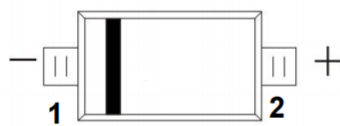


### Features

- 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

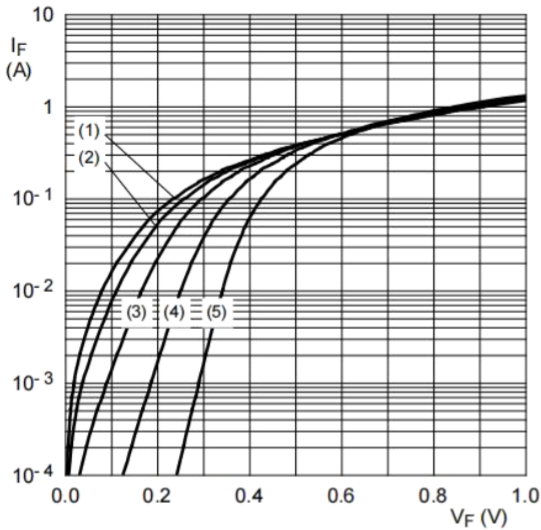
Note:1,Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

### 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

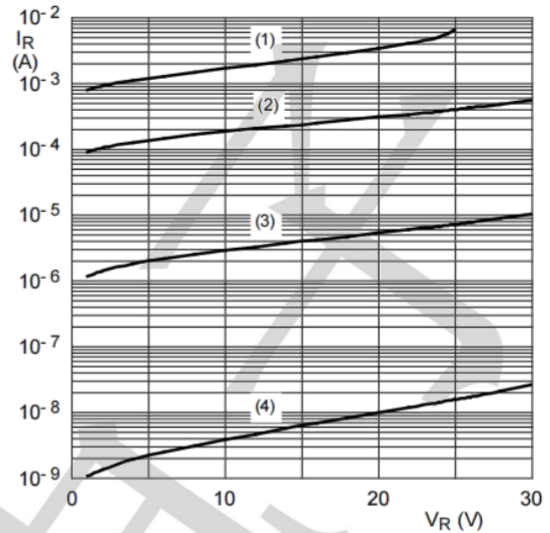
Note:2,ulsed test: tp ≤ 300 μs; δ ≤ 0.02

### Typical Electrical Characteristic Curves



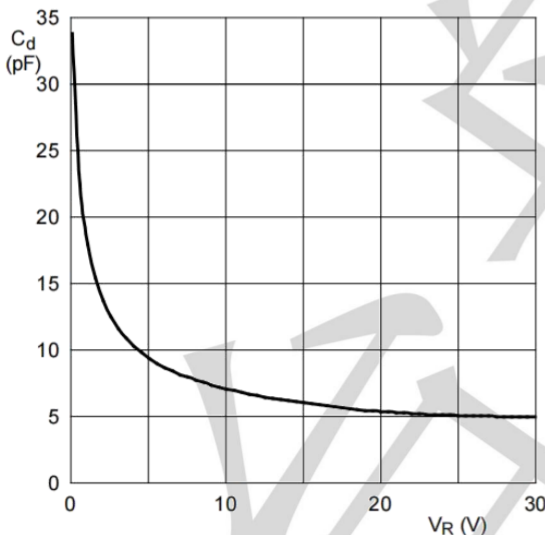
- (1)  $T_j = 150^\circ\text{C}$
- (2)  $T_j = 125^\circ\text{C}$
- (3)  $T_j = 85^\circ\text{C}$
- (4)  $T_j = 25^\circ\text{C}$
- (5)  $T_j = -40^\circ\text{C}$

Forward current as a function of forward voltage; typical values



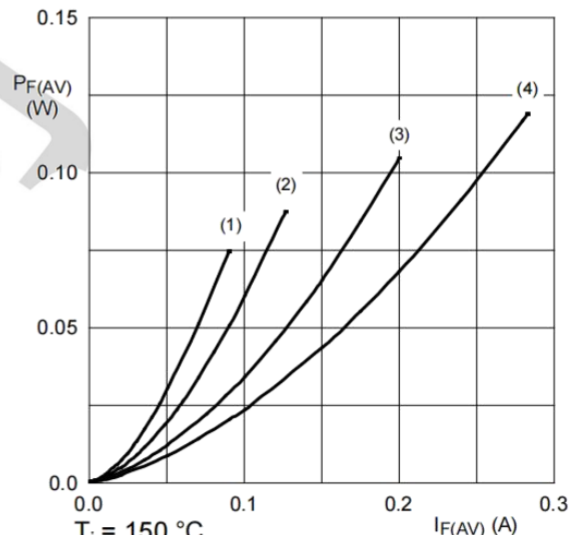
- (1)  $T_j = 125^\circ\text{C}$
- (2)  $T_j = 85^\circ\text{C}$
- (3)  $T_j = 25^\circ\text{C}$
- (4)  $T_j = -40^\circ\text{C}$

Reverse current as a function of reverse voltage; typical values



$f = 1\text{ MHz}$ ;  $T_{\text{amb}} = 25^\circ\text{C}$

Diode capacitance as a function of reverse voltage; typical values

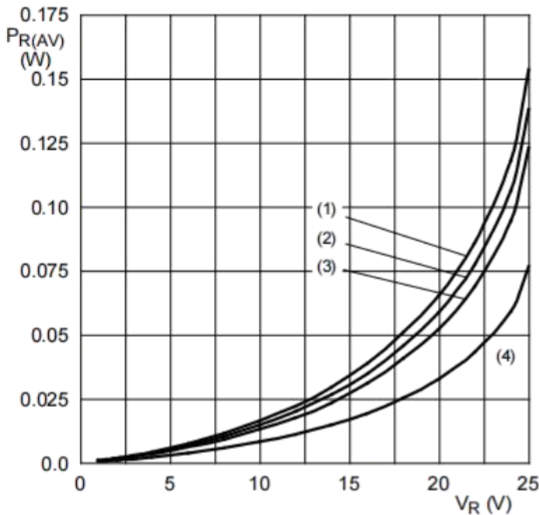


$T_j = 150^\circ\text{C}$

- (1)  $\delta = 0.1$
- (2)  $\delta = 0.2$
- (3)  $\delta = 0.5$
- (4)  $\delta = 1$

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

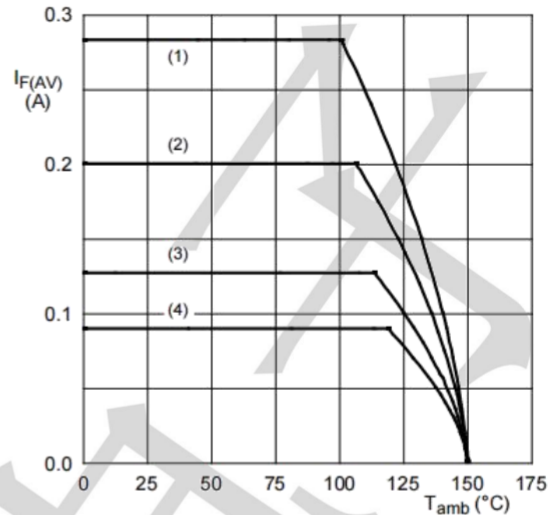
### Typical Electrical Characteristic Curves



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

- (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

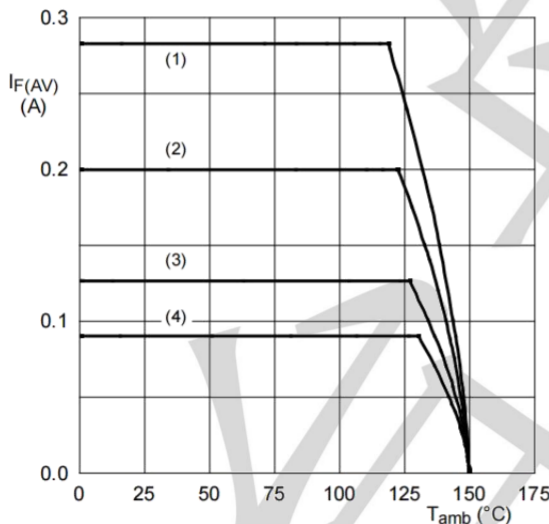


FR4 PCB, standard footprint

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

- (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

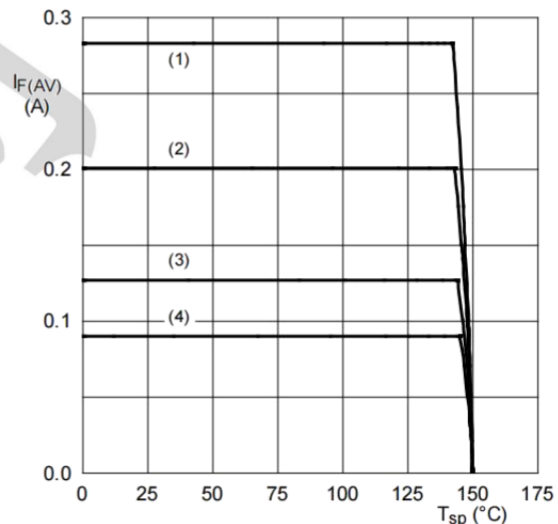


FR4 PCB, mounting pad for cathode  $1\text{ cm}^2$

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

- (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

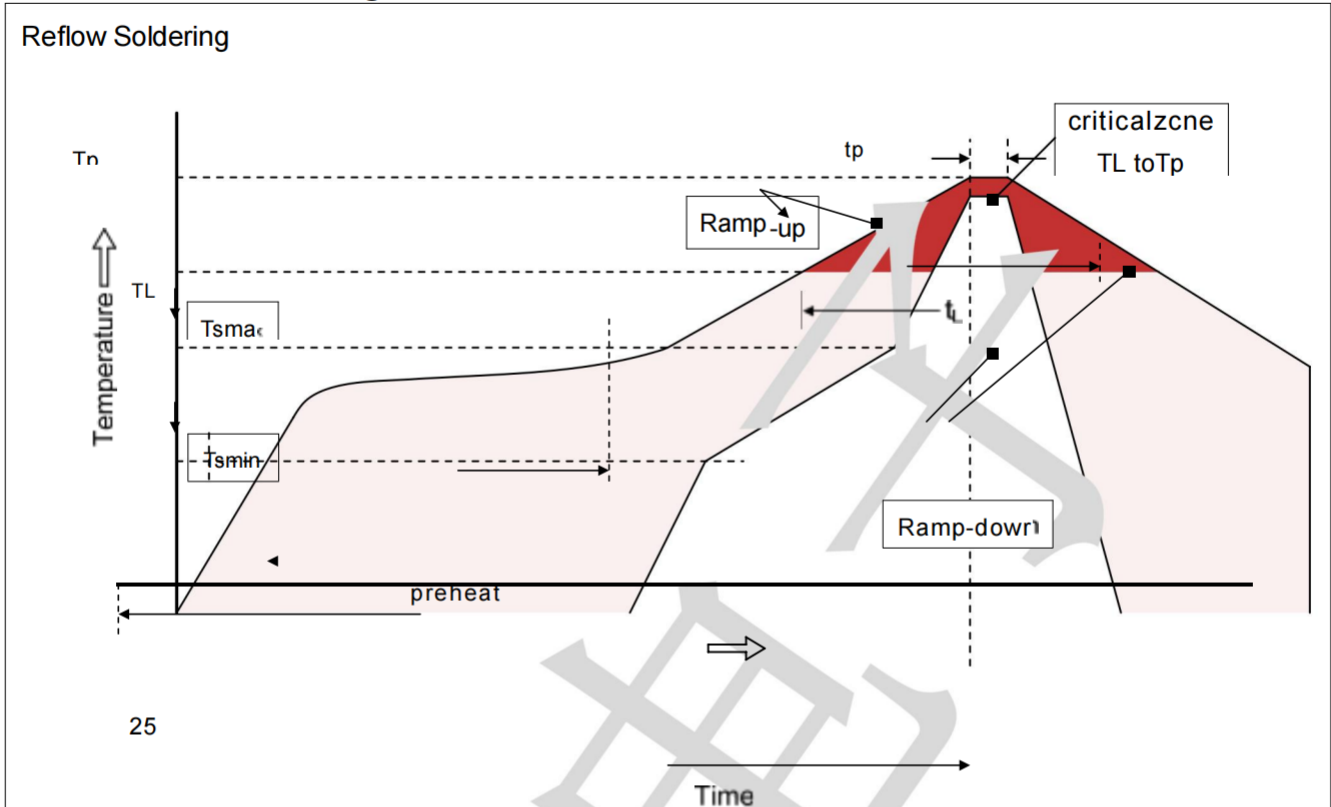


$T_j = 150\text{ }^\circ\text{C}$

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

Average forward current as a function of solder point temperature; typical values

### Recommended Soldering Conditions

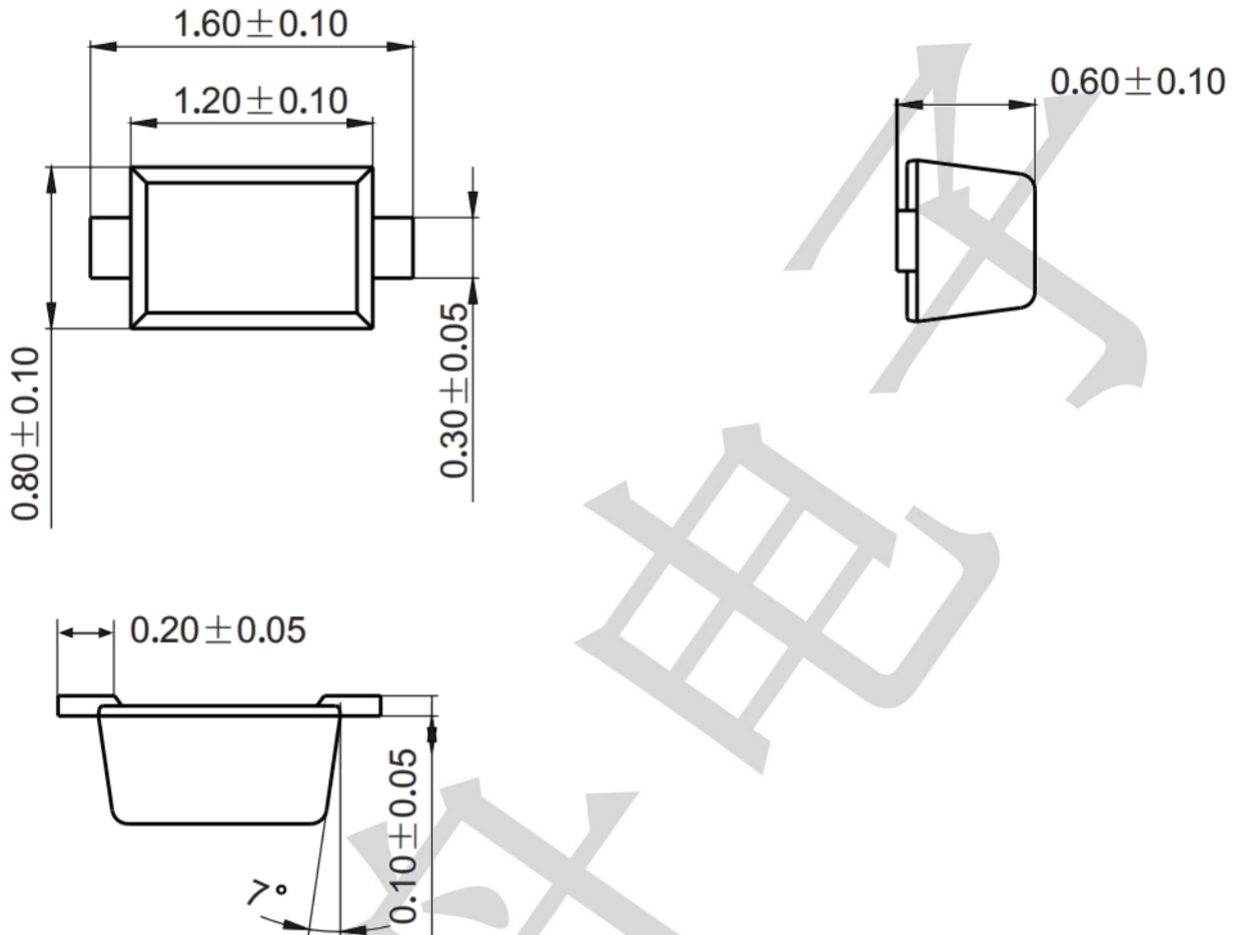


### Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	3°C/second max.
Preheat	
-Temperature Min ( $T_{S\ min}$ )	150°C
-Temperature Max ( $T_{S\ max}$ )	200°C
-Time (min to max) (ts)	60-180 seconds
$T_{S\ max}$ 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)

