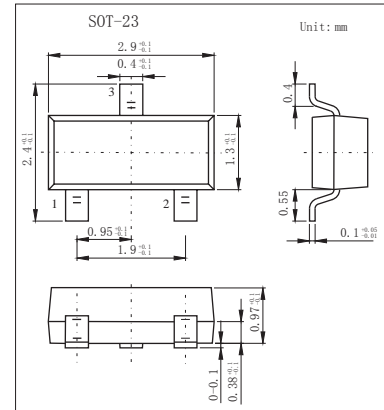
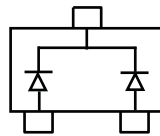


Switching Diodes

1KS3013

■ Features

- Small plastic SMD package.
- High switching speed: max.4 ns.
- Repetitive peak forward current: max.450 mA.



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Repetitive peak reverse voltage	V_{RRM}	140	V
Continuous reverse voltage	V_R	100	V
Continuous forward current (single diode loaded *) (double diode loaded *)	I_F	215 125	mA
Repetitive peak forward current	I_{FRM}	450	mA
Non-repetitive peak forward current $T_j=25^\circ\text{C}$ $t=1\ \mu\text{s}$	I_{FSM}	4	A
$t=1\text{ms}$		1	
$t=1\text{s}$		0.5	
power dissipation *	P_D	250	mW
Thermal resistance from junction to tie-point	$R_{th\ j\text{-}tp}$	360	K/W
Thermal resistance from junction to ambient *	$R_{th\ j\text{-}a}$	500	K/W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to +150	$^\circ\text{C}$

* Device mounted on an FR4 printed-circuit board.

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

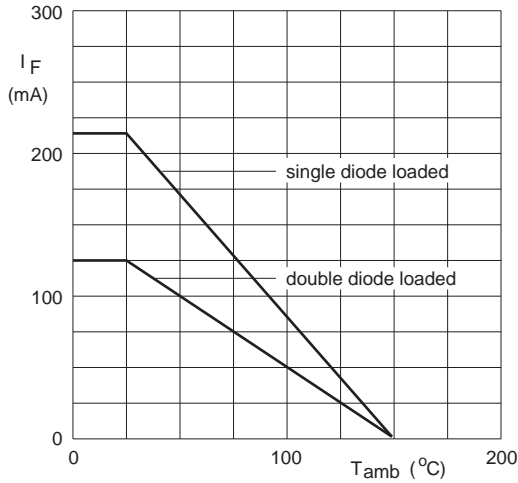
Parameter	Symbol	Test conditions	Max	Unit
Forward voltage	V_F	$I_F = 1\ \text{mA}$	715	mV
		$I_F = 10\ \text{mA}$	855	mV
		$I_F = 50\ \text{mA}$	1	V
		$I_F = 150\ \text{mA}$	1.25	V
Reverse current	I_R	$V_R = 75\ \text{V}$	1	μA
		$V_R = 25\ \text{V}; T_j = 150^\circ\text{C}$	30	
		$V_R = 75\ \text{V}; T_j = 150^\circ\text{C}$	50	
Diode capacitance	C_d	$V_R = 0\ \text{V}, f = 1\ \text{MHz}$	1.5	pF
Reverse recovery time	t_{rr}	when switched from $I_F = 10\ \text{mA}$ to $I_R = 10\ \text{mA}; R_L = 100\ \Omega$; measured at $I_R = 1\ \text{mA}$	4	nS
Forward recovery voltage	V_{fr}	$I_F = 10\ \text{mA}, t_r = 20\ \text{ns}$	1.75	V

■ Marking

Marking	A4t
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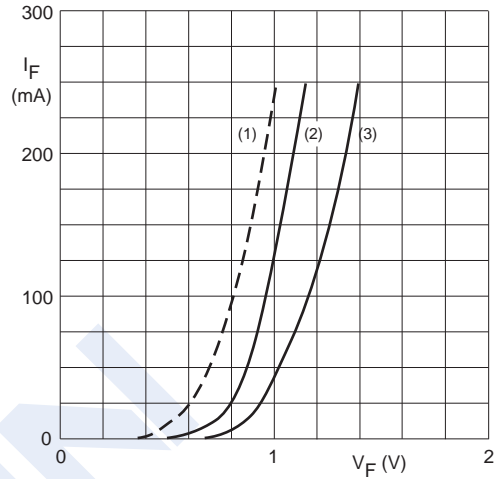
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Typical Characteristics



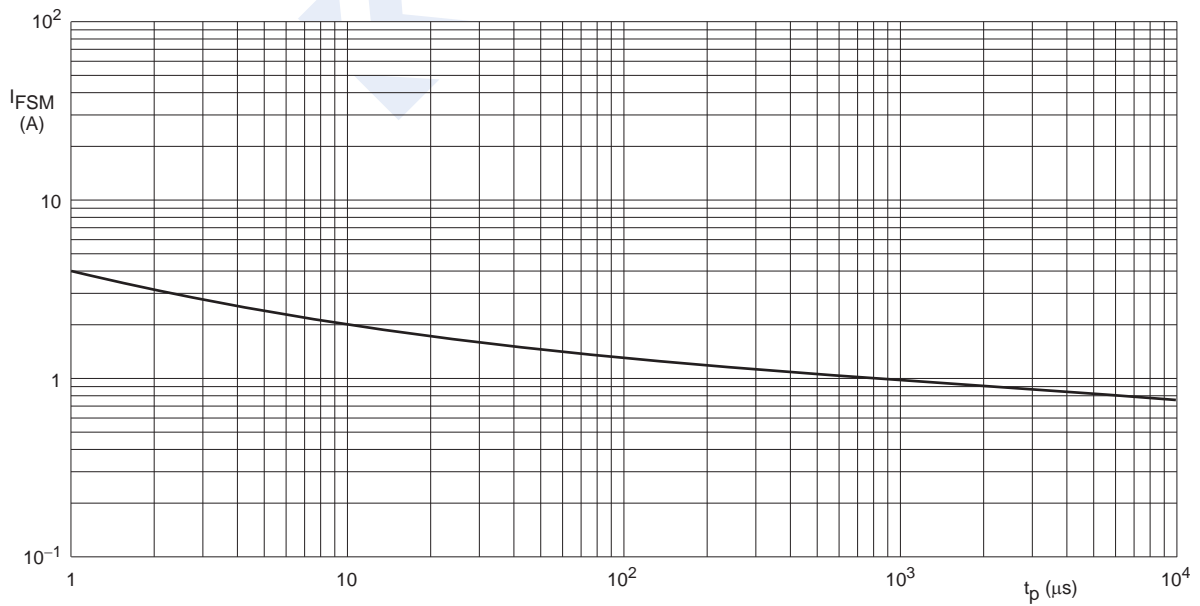
Device mounted on an FR4 printed-circuit board.

Fig.2 Maximum permissible continuous forward current as a function of ambient temperature.



- (1) $T_j = 150$ °C; typical values.
- (2) $T_j = 25$ °C; typical values.
- (3) $T_j = 25$ °C; maximum values.

Fig.3 Forward current as a function of forward voltage.



Based on square wave currents.
 $T_j = 25$ °C prior to surge.

Fig.4 Maximum permissible non-repetitive peak forward current as a function of pulse duration.

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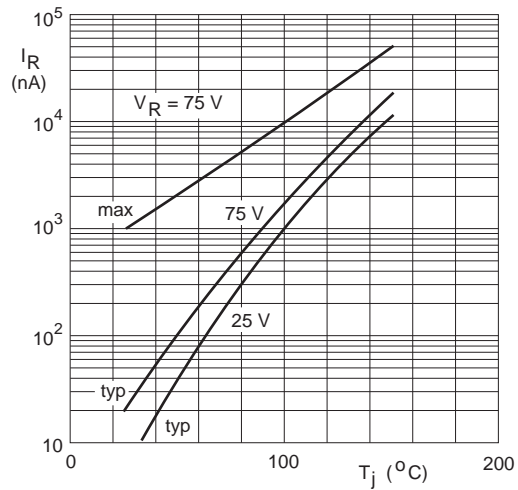
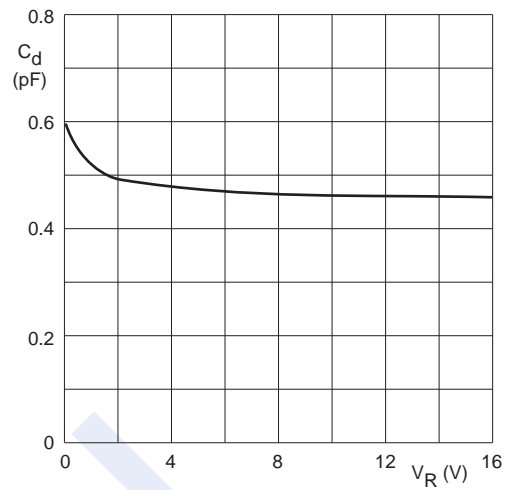


Fig.5 Reverse current as a function of junction temperature.



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

Fig.6 Diode capacitance as a function of reverse voltage; typical values.