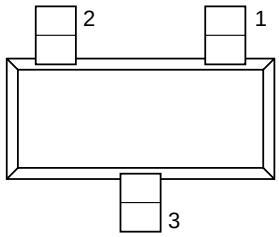
FEATURES

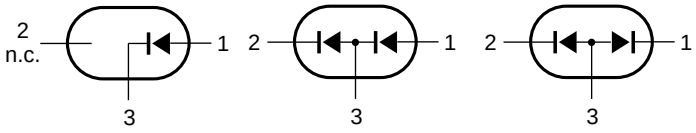
- Small plastic SMD package
- Switching speed: max. 50 ns
- General application
- Continuous reverse voltage: max. 90 V
- Repetitive peak reverse voltage: max. 110 V
- Repetitive peak forward current: max. 600 mA
- Repetitive peak reverse current: max. 600 mA.

APPLICATIONS

- General purpose switching in e.g. surface mounted circuits.

SOT-23





BAS29 **BAS31** **BAS35**

PINNING

PIN	DESCRIPTION		
	BAS29	BAS31	BAS35
1	anode	anode	cathode (k1)
2	not connected	cathode	cathode (k2)
3	cathode	common connection	common anode

LIMITING VALUES

PARAMETER	SYMBOL	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
repetitive peak reverse voltage	V_{RRM}		–	110	V
continuous reverse voltage	V_R		–	90	V
continuous forward current	I_F	single diode loaded; see Fig.2; note 1	–	250	mA
		double diode loaded; see Fig.2; note 1	–	150	mA
repetitive peak forward current	I_{FRM}		–	600	mA
non-repetitive peak forward current	I_{FSM}	square wave; T_j = 25 °C prior to surge; see Fig.4			
		t = 1 μs	–	10	A
		t = 100 μs	–	4	A
		t = 1 s	–	0.75	A
total power dissipation	P_{tot}	T_{amb} = 25 °C; note 1	–	250	mW
repetitive peak reverse current	I_{RRM}		–	600	mA
repetitive peak reverse energy	E_{RRM}	$t_p \geq 50$ μs; $f \leq 20$ Hz; T_j = 25 °C	–	5	mJ
storage temperature	T_{stg}		–65	+150	°C
junction temperature	T_j		–	150	°C

Note

1. Device mounted on an FR4 printed-circuit board.

ELECTRICAL CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

PARAMETER	SYMBOL	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
forward voltage	V_F	see Fig.3			
		I_F = 10 mA	–	750	mV
		I_F = 50 mA	–	840	mV
		I_F = 100 mA	–	900	mV
		I_F = 200 mA	–	1	V
		I_F = 400 mA	–	1.25	V
reverse current	I_R	see Fig.5			
		V_R = 90 V	–	100	nA
		V_R = 90 V; T_j = 150 °C	–	100	μA
reverse avalanche breakdown voltage	$V_{(BR)R}$	I_R = 1 mA	120	170	V
diode capacitance	C_d	f = 1 MHz; V_R = 0; see Fig.6	–	35	pF
reverse recovery time	t_{rr}	when switched from I_F = 30 mA to I_R = 30 mA; R_L = 100 Ω; measured at I_R = 3 mA; see Fig.7	–	50	ns

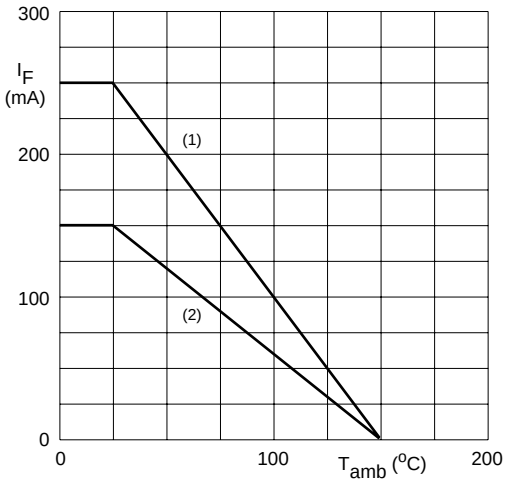
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}tp}$	thermal resistance from junction to tie-point		360	K/W
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	500	K/W

Note

1. Device mounted on an FR4 printed-circuit board.

GRAPHICAL DATA

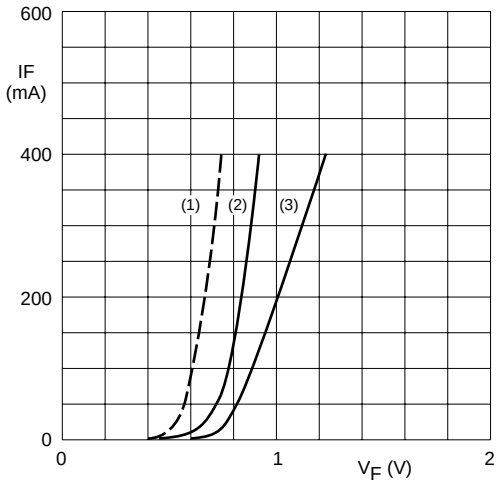


Device mounted on an FR4 printed-circuit board.

(1) Single diode loaded.

(2) Double diode loaded.

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

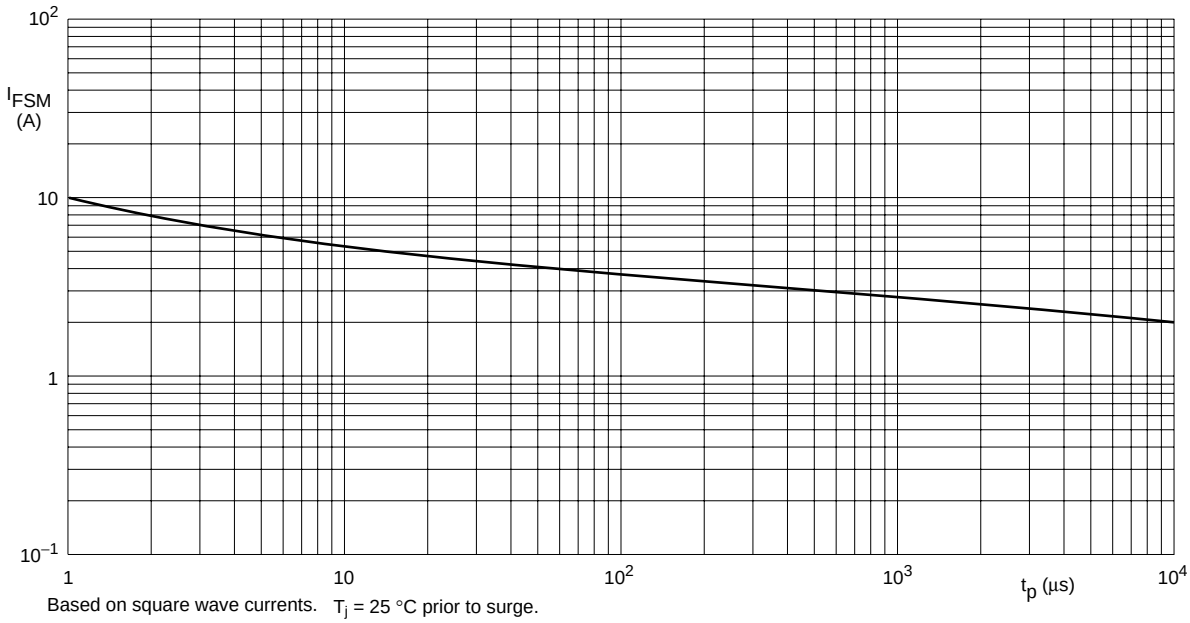


(1) T_j = 150 °C; typical values.

(2) T_j = 25 °C; typical values.

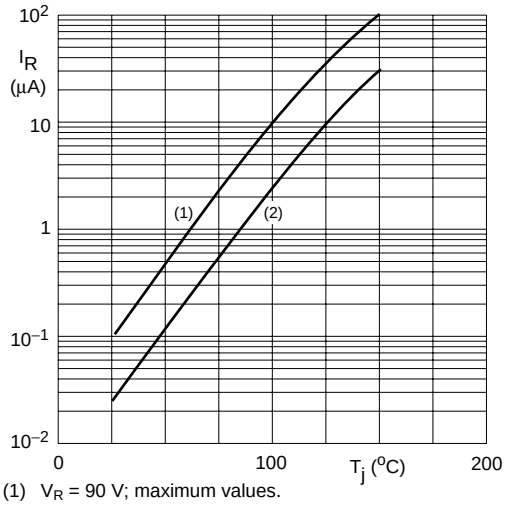
(3) T_j = 25 °C; maximum values.

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



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

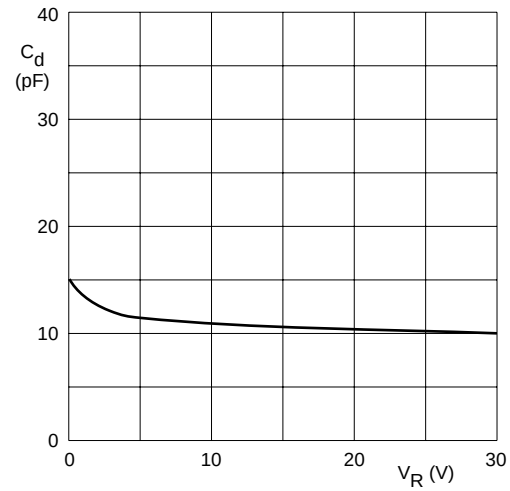
Fig.4 Maximum permissible non-repetitive peak forward current as a function of pulse duration.



(1) V_R = 90 V; maximum values.

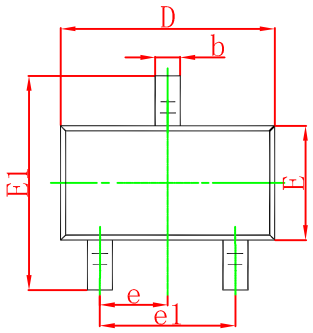
(2) V_R = 90 V; typical values.

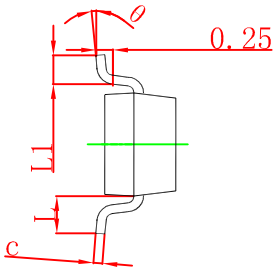
Fig.5 Reverse current as a function of junction temperature.

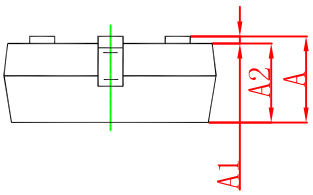


f = 1 MHz; T_j = 25 °C.

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

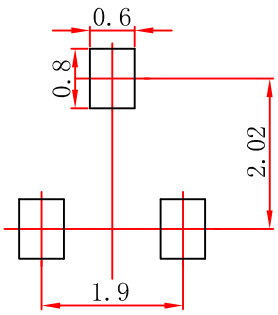






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.