Schottky barrier diode BAT86

FEATURES

- Low forward voltage
- Guard ring protected
- Hermetically-sealed leaded glass package.

APPLICATIONS

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Blocking diodes.

DESCRIPTION

Planar Schottky barrier diode with an integrated protection ring against static discharges, encapsulated in a hermetically-sealed subminiature SOD68 (DO-34) package. The diode is suitable for mounting on a 2 E (5.08 mm) pitch.

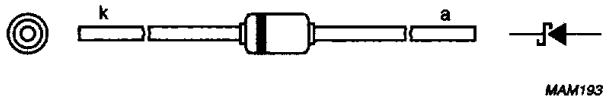


Fig.1 Simplified outline (SOD68; DO-34) and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_R	continuous reverse voltage		–	50	V
I_F	continuous forward current		–	200	mA
$I_{F(AV)}$	average forward current	PCB mounting, lead length = 4 mm; V_{RWM} = 25 V; a = 1.57; δ = 0.5; T_{amb} = 50 °C; see Fig.2	–	200	mA
I_{FRM}	repetitive peak forward current	$t_p \leq 1$ s; $\delta \leq 0.5$	–	500	mA
I_{FSM}	non-repetitive peak forward current	$t_p \leq 10$ ms	–	5	A
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	125	°C
T_{amb}	operating ambient temperature		–65	+125	°C

ELECTRICAL CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V_F	forward voltage	see Fig.3		
		I_F = 0.1 mA	300	mV
		I_F = 1 mA	380	mV
		I_F = 10 mA	450	mV
		I_F = 30 mA	600	mV
		I_F = 100 mA	900	mV
I_R	reverse current	V_R = 40V; see Fig.4; note 1	5	µA
t_{rr}	reverse recovery time	when switched from I_F = 10 mA to I_R = 10 mA; R_L = 100 Ω; measured at I_R = 1 mA; see Fig.6	4	ns
C_d	diode capacitance	f = 1 MHz; V_R = 1 V; see Fig.5	8	pF

Note

1. Pulsed test: t_p = 300 µs; δ = 0.02.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	320	K/W

Note

1. Refer to SOD68 standard mounting conditions.

GRAPHICAL DATA

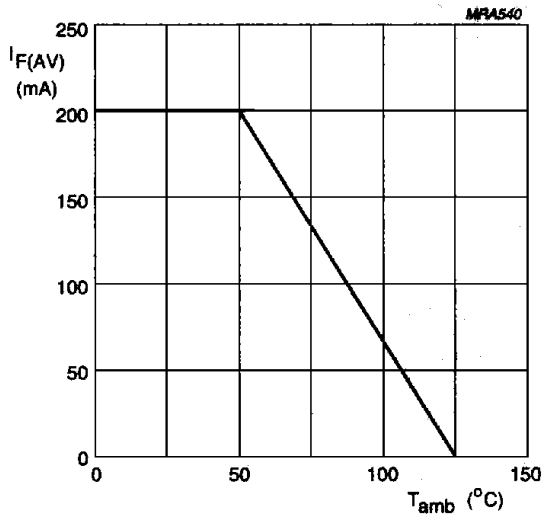
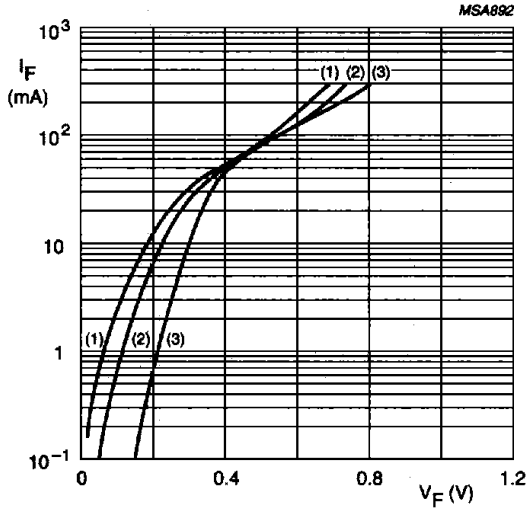
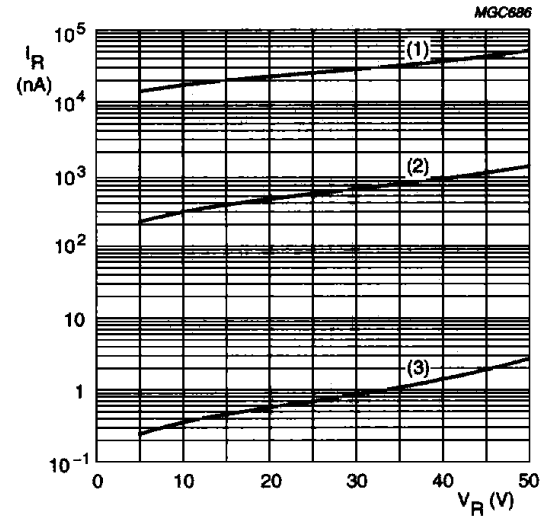


Fig.2 Derating curve.



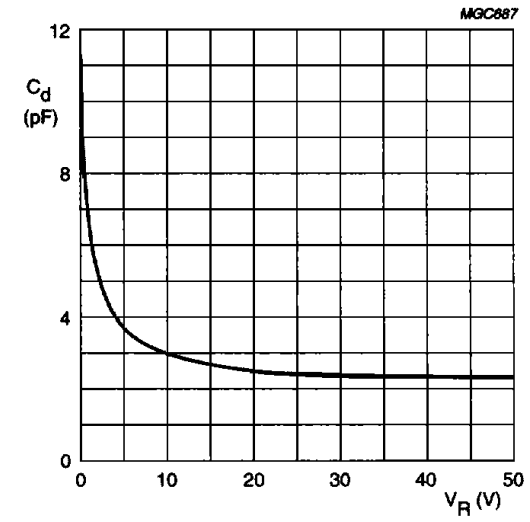
(1) T_{amb} = 125 °C.
(2) T_{amb} = 85 °C.
(3) T_{amb} = 25 °C.

Fig.3 Forward current as a function of forward voltage; typical values.



(1) T_{amb} = 85 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −40 °C.

Fig.4 Reverse current as a function of reverse voltage; typical values.



f = 1 MHz.

Fig.5 Diode capacitance as a function of reverse voltage; typical values.

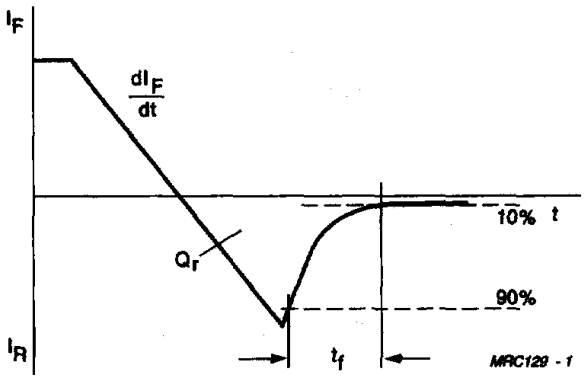


Fig.6 Reverse recovery definitions.