High Speed Diode
SOT-23

RoHS Compliant

Description:

Epitaxial medium-speed switching diode with a low leakage current in a small SOT-23 plastic SMD package.

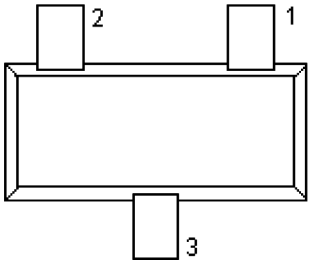
Features:

- Plastic SMD package
- Low leakage current: typical 3pA
- Switching time: typical 0.8µs
- Continuous reverse voltage: maximum 75V
- Repetitive peak reverse voltage: maximum 85V
- Repetitive peak forward current: maximum 500mA

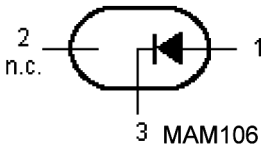
Application:

Low leakage current applications in surface mounted circuits.

Simplified Outline (SOT-23) and Symbol



Top view



Pin	Description
1	Anode
2	Not Connected
3	Cathode

Limiting Values

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

Symbol	Parameter	Conditions	Min.	Max.	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	-	-	85	V
V_R	Continuous Reverse Voltage	-	-	75	
I_F	Continuous Forward Current	Note 1	-	215	mA
I_{FRM}	Repetitive Peak Forward Current	-	-	500	
I_{FSM}	Non-repetitive Peak Forward Current	Square Wave, T_j = 25°C Prior to Surge t_p = 1µs t_p = 1µs t_p = 1s	-	4 1 0.5	A A A
P_{tot}	Total Power Dissipation	-T_a = 25°C, Note 1	-65	250	mW
T_{stg}	Storage Temperature	-	-	+150	°C
T_j	Junction Temperature	-	-	150	

Note: 1. Device mounted on a FR4 printed-circuit board.

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

Symbol	Parameter	Conditions	Min.	Max.	Unit
V_F	Forward Voltage	I_F = 1mA I_F = 10mA I_F = 50mA I_F = 150mA	- - - -	0.9 1 1.1 1.25	V V V V
I_R	Reverse Current	V_R = 75V V_R = 75V; T_j = 150°C	0.003 3	5 80	nA nA
C_d	Diode Capacitance	f = 1MHz, V_R = 0	3	-	pF
t_{rr}	Reverse Recovery Time	When Switched from I_F = 10mA to I_R = 10mA; R_L = 100Ω; Measured at I_R = 1mA	0.8	3	µs

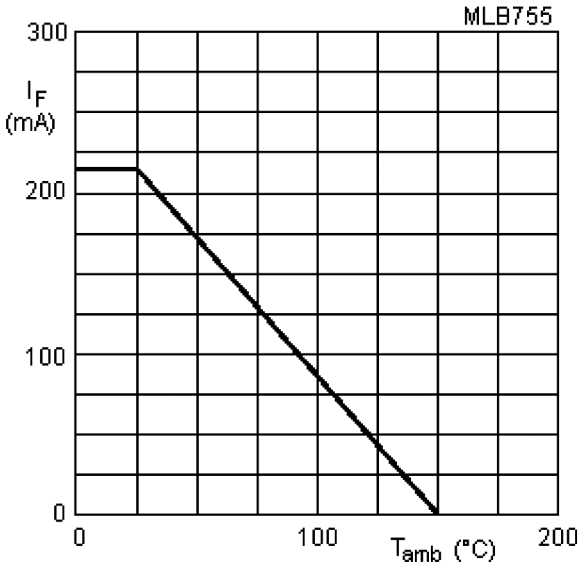
Thermal Characteristics

Symbol	Parameter	Conditions	Value	Unit
$R_{th\ j\text{-}tp}$	Thermal Resistance from Junction to Tie-Point	-	330	K/W
$R_{th\ j\text{-}a}$	Thermal Resistance from Junction to Ambient	Note 1	500	

Note: 1. Device mounted on a FR4 printed-circuit board.

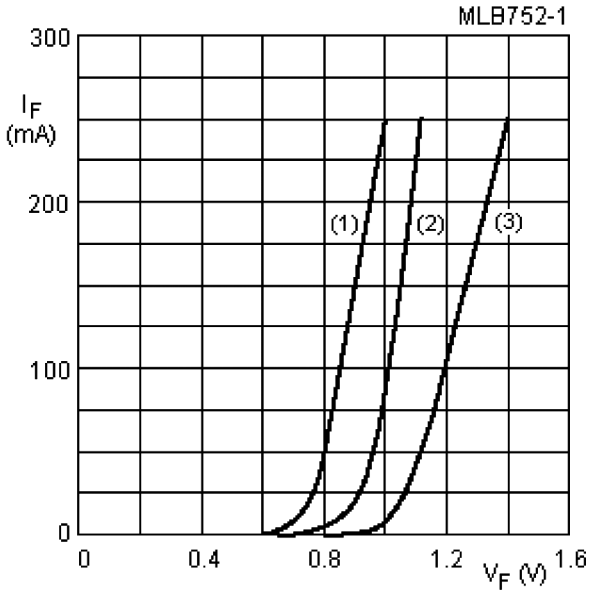
Graphical Data

Maximum Permissible Continuous Forward Current as a Function of Ambient Temperature



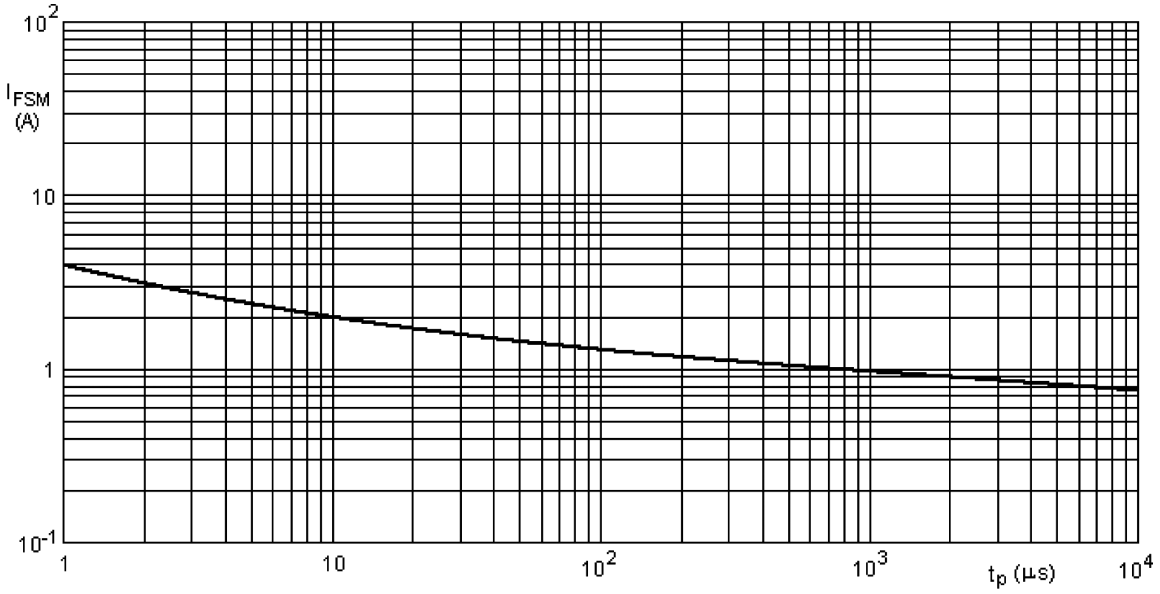
Device Mounted on a FR4 Printed-Circuit Board.

Forward Current as a Function of Forward Voltage



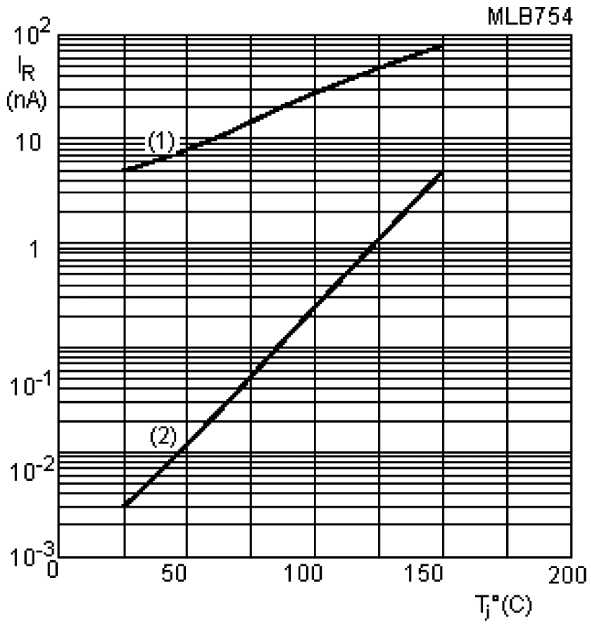
(1) T_j = 150°C; Typical values.
(2) T_j = 25°C; Typical values.
(3) T_j = 25°C; maximum values.

Maximum Permissible Non-Repetitive Peak Forward Current as a Function of Pulse Duration



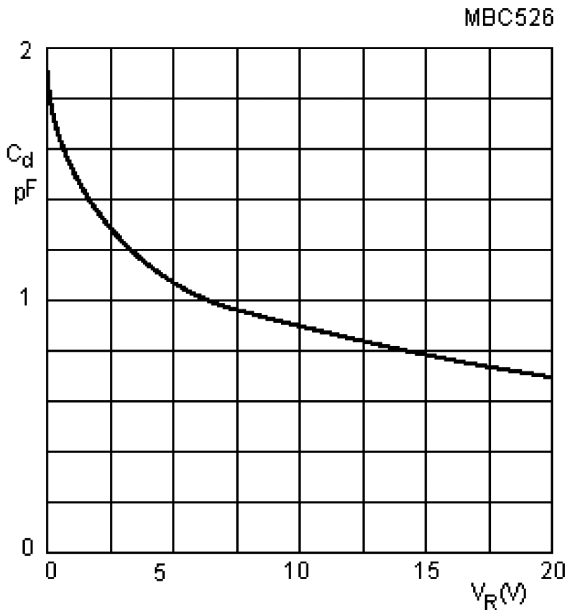
Based on square wave currents; T_j = 25°C prior to surge.

Reverse Current as a Function of Junction Temperature



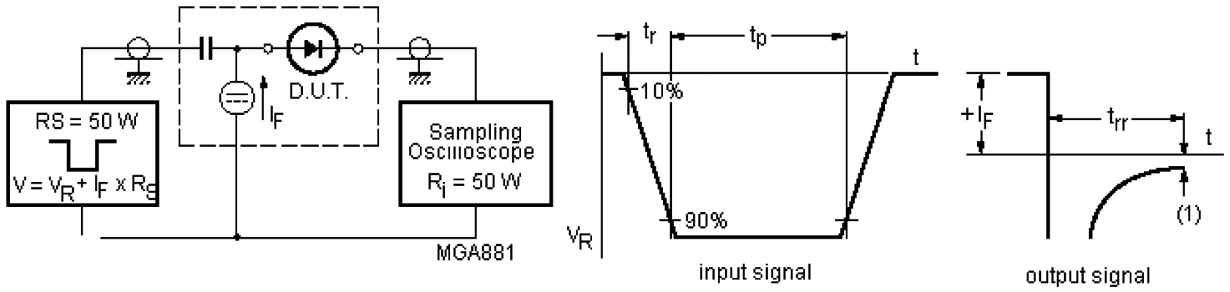
V_R = 75 V

Diode Capacitance as a Function of Reverse Voltage; Typical Values



f = 1 MHz; T_j = 25 °C

Reverse Recovery Time Test Circuit and Waveforms



Part Number Table

Description	Part Number
Diode, High Speed, SOT-23	BAS116+