

Vishay Semiconductors

Small Signal Fast Switching Diode



FEATURES

- · Silicon epitaxial planar diode
- Electrical data identical with the device 1N4151
- MicroMELF package
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



HALOGEN

FREE

MECHANICAL DATA

Case: MicroMELF Weight: approx. 12 mg Cathode band color: black Packaging codes/options:

TR3/10K per 13" reel (8 mm tape), 10K/box TR/2.5K per 7" reel(8 mm tape), 12.5K/box

APPLICATIONS

· Extreme fast switches

PARTS TABLE						
PART	TYPE DIFFERENTIATION	ORDERING CODE	CODE INTERNAL CONSTRUCTION			
MCL4151	V _{RRM} = 75 V	MCL4151-TR3 or MCL4151-TR	Single diode	Tape and reel		

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Repetitive peak reverse voltage		V_{RRM}	75	V		
Reverse voltage		V _R	50	V		
Peak forward surge current	t _p = 1 μs	I _{FSM}	2	Α		
Repetitive peak forward current		I _{FRM}	450	mA		
Forward continuous current		I _F	200	mA		
Average forward current	V _R = 0	I _{FAV}	150	mA		
Power dissipation		P _{tot}	500	mW		

THERMAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Thermal resistance junction to ambient air	Mounted on epoxy-glass hard tissue, fig. 4, 35 µm copper clad, 0.9 mm ² copper area per electrode	R_{thJA}	500	K/W	
Junction temperature		Tj	175	°C	
Storage temperature range		T _{stg}	- 65 to + 175	°C	



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ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 50 mA	V _F		880	1000	mV
Reverse current	V _R = 50 V	I _R			50	nA
neverse current	$V_R = 50 \text{ V}, T_j = 150 ^{\circ}\text{C}$	I _R			50	μΑ
Breakdown voltage	$I_R = 5 \mu A, t_p/T = 0.01,$ $t_p = 0.3 \text{ ms}$	V _(BR)	75			V
Diode capacitance	$V_R = 0 \text{ V, f} = 1 \text{ MHz,}$ $V_{HF} = 50 \text{ mV}$	C _D			2	pF
Reverse recovery time	$I_F = I_R = 10 \text{ mA},$ $i_R = 1 \text{ mA}$	- t _{rr}			4	- ns
neverse recovery time	$I_F = 10 \text{ mA}, V_R = 6 \text{ V},$ $I_R = 0.1 \text{ x } I_R, R_L = 100 \Omega$				2	

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

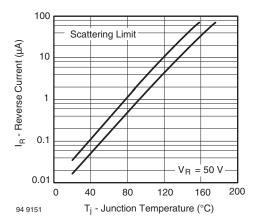


Fig. 1 - Reverse Current vs. Junction Temperature

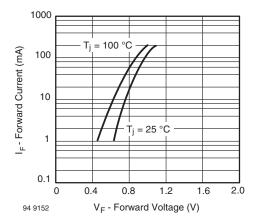


Fig. 2 - Forward Current vs. Forward Voltage

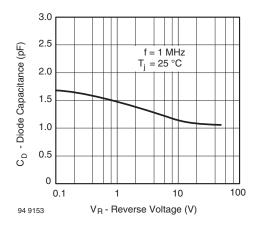


Fig. 3 - Diode Capacitance vs. Reverse Voltage

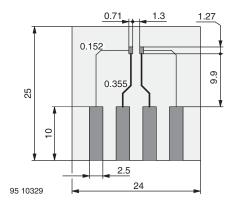
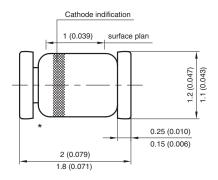


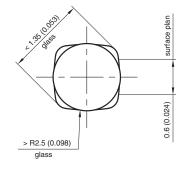
Fig. 4 - Board for R_{thJA} definition (in mm)



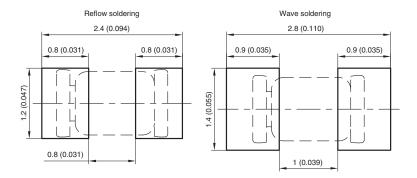
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PACKAGE DIMENSIONS in millimeters (inches): MicroMELF





Foot print recommendation:



Created - Date: 26.July.1996 Rev. 13 - Date: 07.June.2006 Document no.:6.560-5007.01-4 96 12072

^{*} The gap between plug and glass can be either on cathode or anode side



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