Small Signal Fast Switching Diode

FEATURES

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

RoHS COMPLIANT
HALOGEN FREE

APPLICATIONS

- Extreme fast switches

ADDITIONAL RESOURCES

3D Models

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

PARTS TABLE

PART	TYPE DIFFERENTIATION	ORDERING CODE	CIRCUIT CONFIGURATION	REMARKS
MCL4151	V_{RRM} = 75 V	MCL4151-TR3 or MCL4151-TR	Single	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	A
Repetitive peak forward current		I_{FRM}	450	mA
Forward continuous current		I_F	200	mA
Average forward current	V_R = 0	$I_{F(AV)}$	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 mm² copper area per electrode	R_{thJA}	500	K/W
Junction temperature		T_j	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		0.880	1	V
Reverse current	V_R = 50 V	I_R			50	nA
	V_R = 50 V, T_j = 150 °C	I_R			50	µA
Breakdown voltage	I_R = 5 µA, t_p/T = 0.01, t_p = 0.3 ms	$V_{(BR)}$	75			V
Diode capacitance	V_R = 0 V, f = 1 MHz, V_{HF} = 50 mV	C_D			2	pF
Reverse recovery time	$I_F = I_R$ = 10 mA, i_R = 1 mA	t_{rr}			4	ns
	I_F = 10 mA, V_R = 6 V, i_R = 0.1 x I_R, R_L = 100 Ω				2	

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

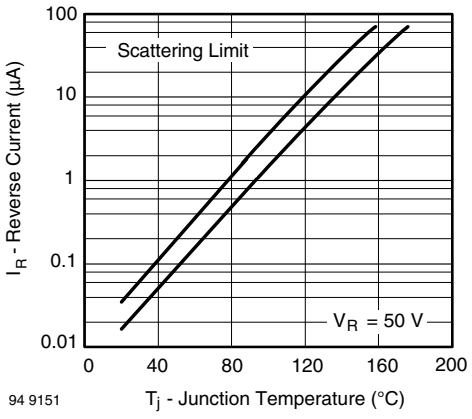

Fig. 1 - Reverse Current vs. Junction Temperature

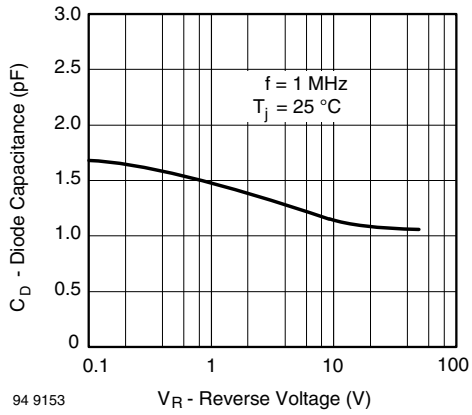

Fig. 3 - Diode Capacitance vs. Reverse Voltage

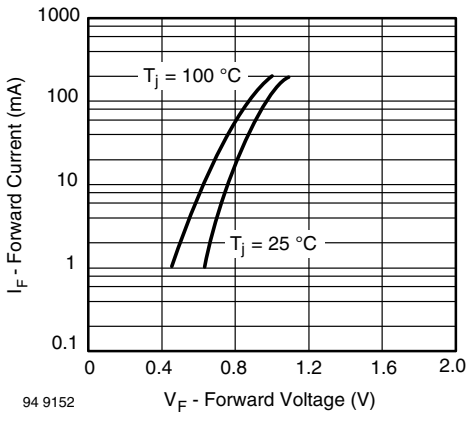

Fig. 2 - Forward Current vs. Forward Voltage

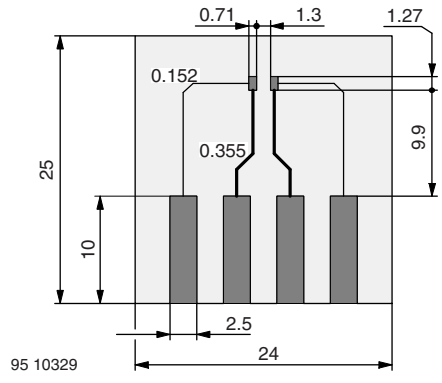

Fig. 4 - Board for R_{thJA} Definition (in mm)

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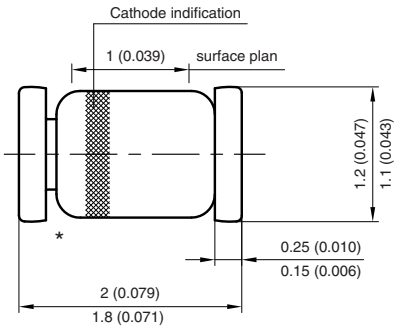
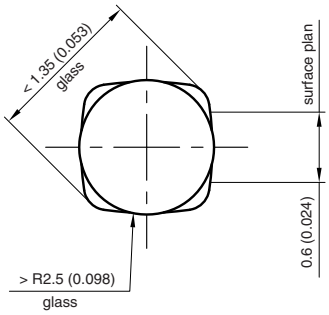
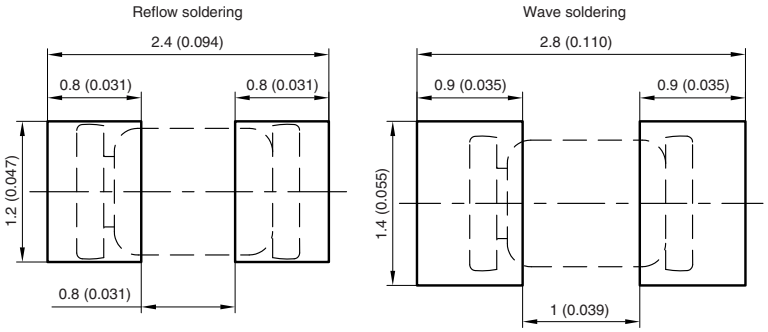
PACKAGE DIMENSIONS in millimeters (inches): **MicroMELF**





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

Foot print recommendation:



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