Littelfuse
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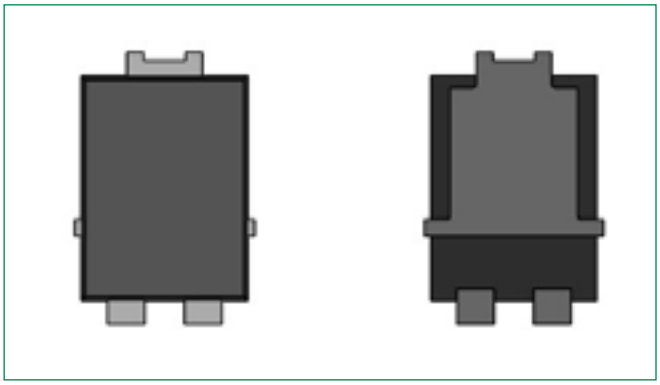
Schottky Barrier Rectifier

DST1045S-A, 10A, 45V, TO-277B, Single

DST1045S-A

HF RoHS e3

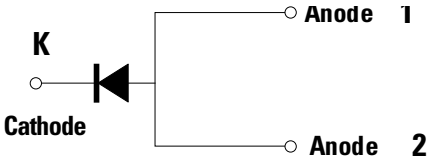


Description

Littelfuse DST series Ultra Low VF Schottky Barrier Rectifier is designed to meet the general requirements of commercial and industry applications by providing high temperature, low leakage, and lower VF products.

It is suitable for high frequency switching mode power supply applications, such as free-wheeling and polarity protection diodes.

Pin out



Features

- Ultra low forward voltage drop
- High frequency operation
- High junction temperature capability
- Trench MOS Barrier Schottky technology
- Single die in TO-277B Package
- High Reliability application and AEC-Q101 qualified

Applications

- Switching mode power supply
- DC/DC converters
- Free-Wheeling diodes
- Polarity Protection Diodes

Maximum Ratings

Parameters	Symbol	Test Conditions	Max	Unit
Peak Inverse Voltage	V_{RWM}	-	45	V
Average Forward Current *	$I_{F(AV)}$	50% duty cycle @T_L = 125 °C rectangular wave form	10	A
Peak One Cycle Non-Repetitive Surge Current	I_{FSM}	8.3 ms, half Sine pulse	150	A

* Mounted on 30 mm x 30 mm pad areas aluminum PCB

Electrical Characteristics

Parameters	Symbol	Test Conditions	Typ	Max	Unit
Forward Voltage Drop *	V_{F1}	@5A, Pulse, T_J = 25 °C	0.43	0.51	V
		@10A, Pulse, T_J = 25 °C	0.49	0.57	
	V_{F2}	@5A, Pulse, T_J = 125 °C	0.32	0.43	
		@10A, Pulse, T_J = 125 °C	0.41	0.50	
Reverse Current *	I_{R1}	@V_R = rated V_R, T_J = 25 °C	0.017	0.80	mA
	I_{R2}	@V_R = rated V_R, T_J = 125 °C	15	100	
Junction Capacitance	C_T	@V_R = 5V, T_C = 25 °C, f_{SIG} = 1MHz	656	-	pF

* Pulse Width < 300µs, Duty Cycle <2%

Revised: TK.03/15/23

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Thermal-Mechanical Specifications

Parameters	Symbol	Test Conditions	Max	Unit
Junction Temperature	T_J	-	-55 to +150	°C
Storage Temperature	T_{stg}	-	-55 to +150	°C
Thermal Resistance Junction to Ambient	$R_{\Theta JA}$	DC operation	75	°C/W
Typical Thermal Resistance Junction to Lead	$R_{\Theta JL}$*	DC operation	3.5	°C/W
Approximate Weight	wt	-	0.08	g
Case Style	TO-277B			

1. Free air, mounted on recommended copper pad area; thermal resistance $R_{\Theta JA}$ - junction to ambient

2. Mounted on 30 mm x 30 mm pad areas aluminum PCB; thermal resistance $R_{\Theta JL}$ - junction to lead

***** Lead temperature monitored at the cathode pin

Figure 1: Forward Current Derating Curve

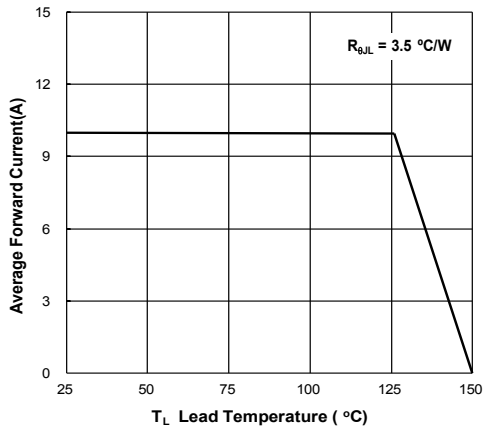

Figure 2: Forward Power Loss Characteristics

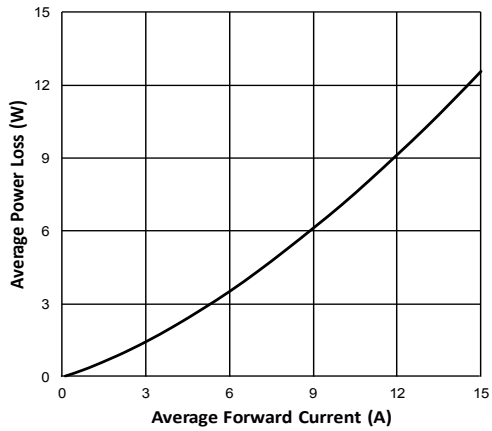

Figure 3: Typical Instantaneous Forward Voltage Characteristics

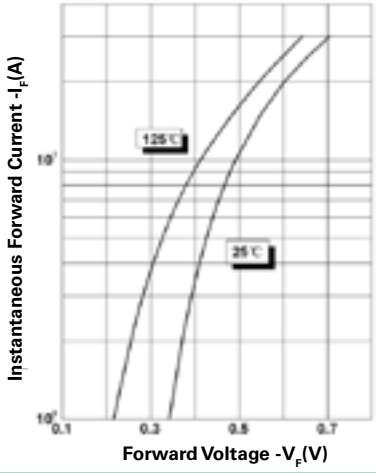

Figure 4: Typical Reverse Characteristics

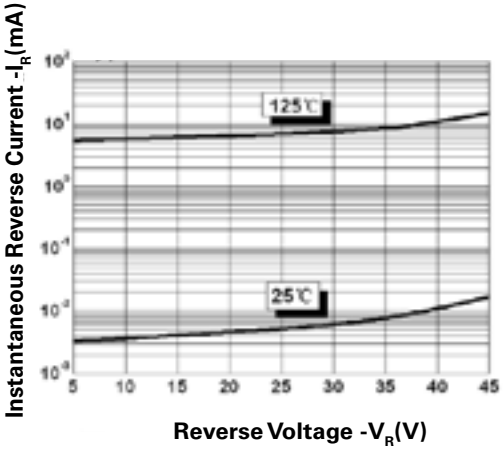

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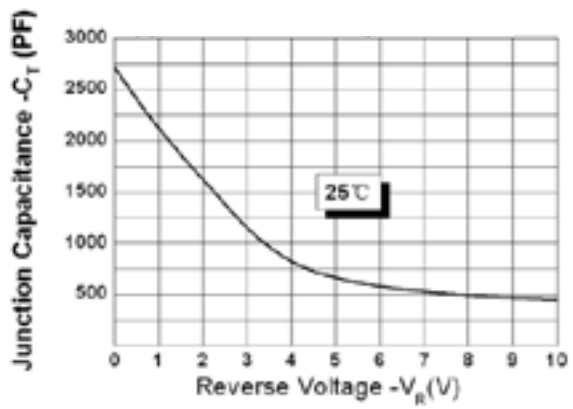
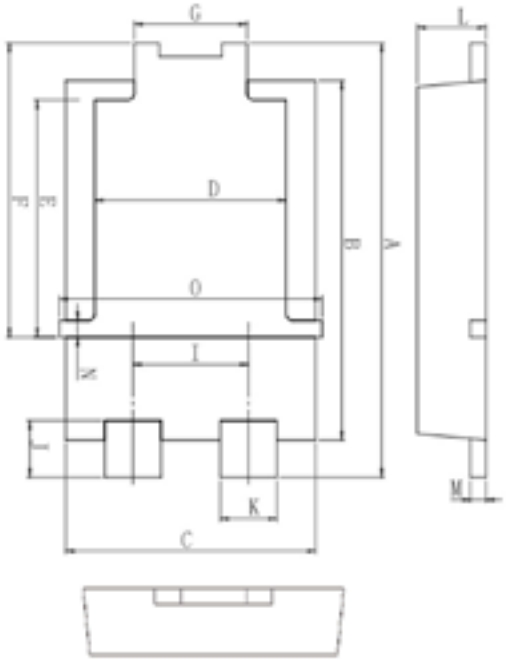
Figure 5: Typical Junction Capacitance

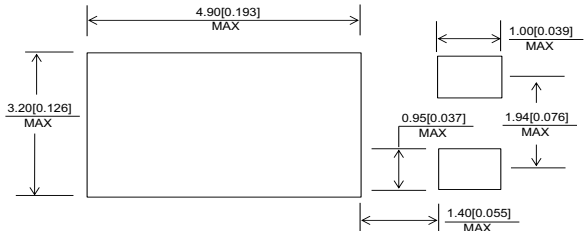


Dimensions-TO-277B



Symbol	Millimeters		
	Min	Typ	Max
A	6.30	6.50	6.70
B	5.28	5.38	5.48
C	3.88	3.98	4.08
D	2.90	3.05	3.20
E	3.40	3.55	3.70
F	4.20	4.40	4.60
G	1.70	1.80	1.90
I	1.74	1.84	1.94
J	0.65	0.85	1.05
K	0.85	0.90	0.95
L	0.95	1.10	1.25
M	0.20	0.25	0.30
N	0.25	0.40	0.55
O	4.00	4.05	4.25

Mounting Pad Layout



Part Numbering and Marking System

DST = Compnent Type
10 = Forward Current (10A)
45 = Reverse Voltage (45V)
S = Package Type
A = AEC-Q101 Qualified Component
LF = Littelfuse
YY = Year
WW = Week
L = Lot Number