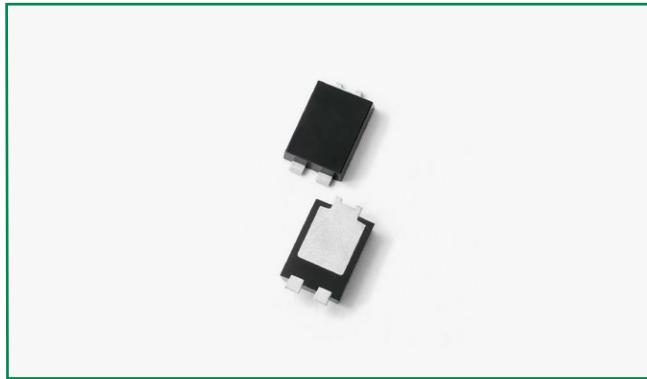
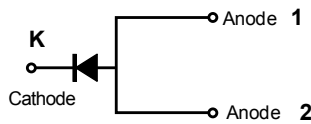


### DST1045S-A



#### Pin out



#### Description

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

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

#### Features

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

#### 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 @ $T_L = 125^\circ\text{C}$ 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, $T_J = 25^\circ\text{C}$	0.43	0.51	V
		@10A, Pulse, $T_J = 25^\circ\text{C}$	0.49	0.57	
	$V_{F2}$	@5A, Pulse, $T_J = 125^\circ\text{C}$	0.32	0.43	
		@10A, Pulse, $T_J = 125^\circ\text{C}$	0.41	0.50	
Reverse Current *	$I_{R1}$	@ $V_R = \text{rated } V_R, T_J = 25^\circ\text{C}$	0.003	0.019	mA
	$I_{R2}$	@ $V_R = \text{rated } V_R, T_J = 125^\circ\text{C}$	5	15	
Junction Capacitance	$C_T$	@ $V_R = 5V, T_C = 25^\circ\text{C}, f_{SIG} = 1\text{MHz}$	656	-	pF

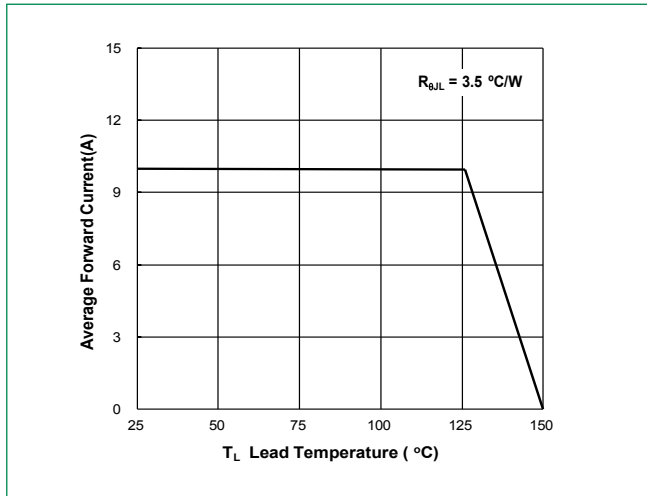
\* Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

### Thermal-Mechanical Specifications

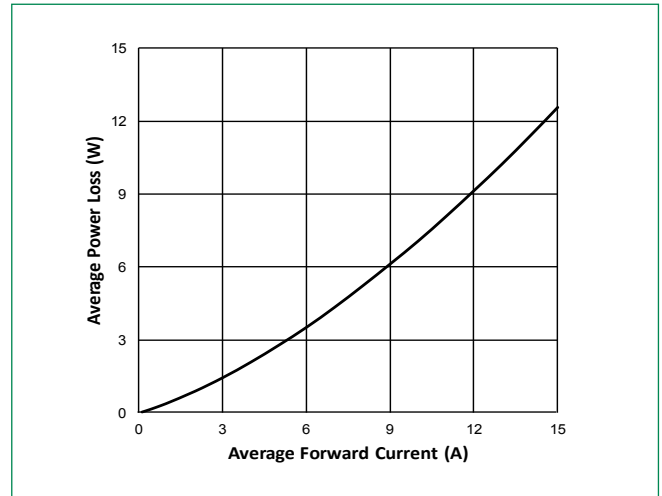
Parameters	Symbol	Test Conditions	Max	Unit
Junction Temperature	$T_J$		-55 to +150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	DC operation	75	°C/W
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}^*$	DC operation	3.5	°C/W
Approximate 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

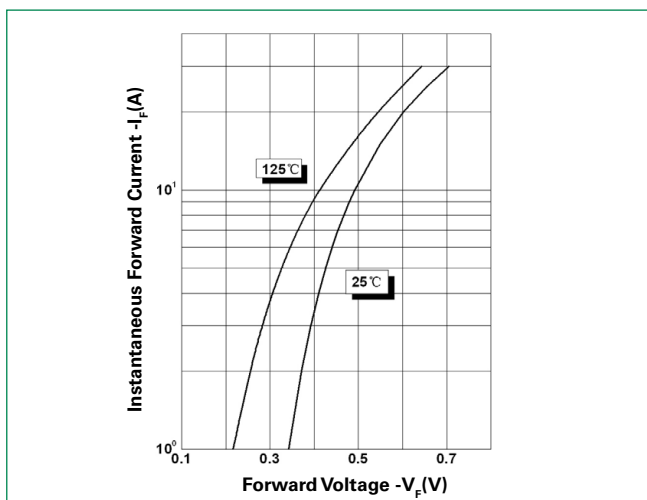
**Figure 1: Forward Current Derating Curve**



**Figure 2: Forward Power Loss Characteristics**



**Figure 3: Typical Instantaneous Forward Voltage Characteristics**



**Figure 4: Typical Reverse Characteristics**

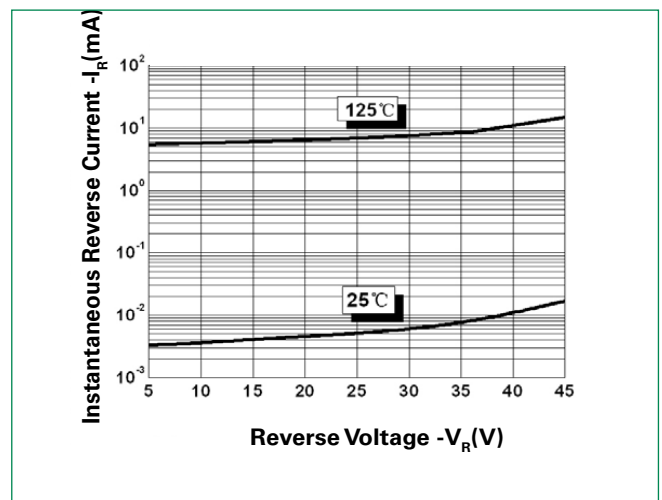
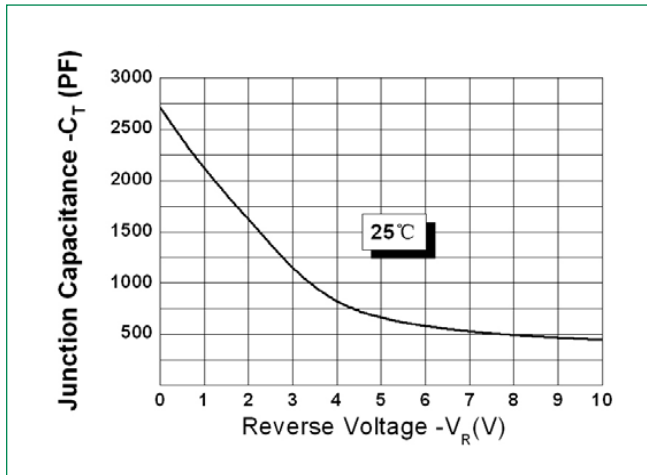
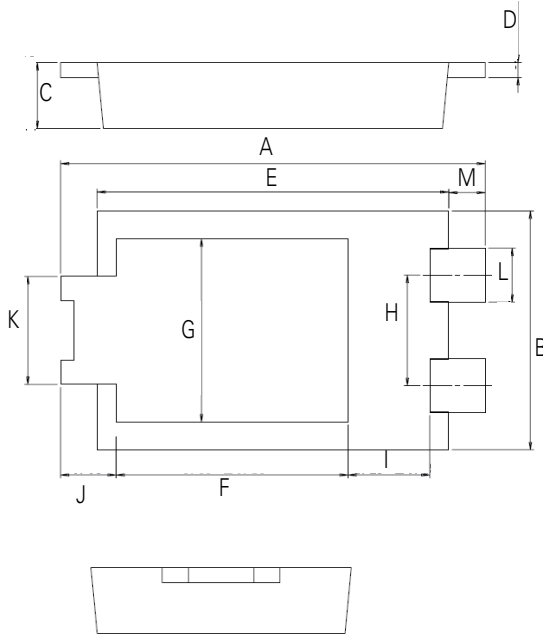


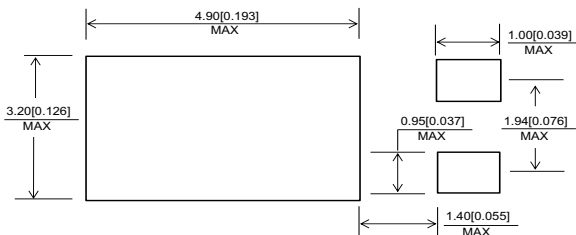
Figure 5: Typical Junction Capacitance



### Dimensions-TO-277B

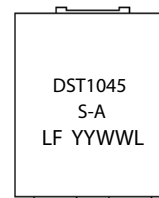


Mounting Pad Layout



Symbol	Millimeters		
	Min	Typ	Max
A	6.30	6.50	6.70
B	3.88	3.98	4.08
C	0.95	1.10	1.25
D	0.20	0.25	0.30
E	5.28	5.38	5.48
F	3.40	3.55	3.70
G	2.90	3.05	3.20
H	1.74	1.84	1.94
I	1.10	1.25	1.40
J	-	0.85	-
K	1.70	1.80	1.90
L	0.85	0.90	0.95
M	-	0.56	-

### Part Numbering and Marking System



- DST = Component 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

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