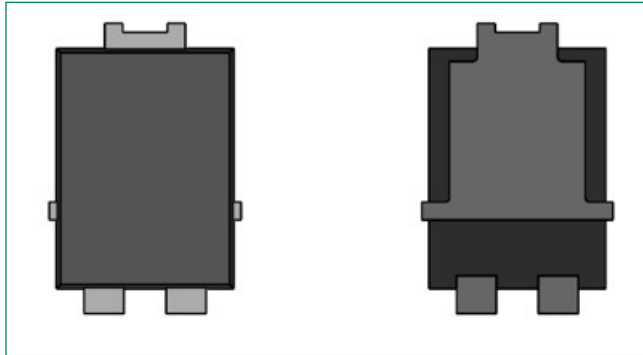
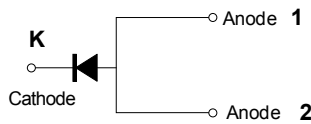


### DST1045S



#### Pin out



#### Description

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

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

#### Features

- Ultra low forward voltage drop
- High frequency operation
- MSL: Level 1 - unlimited
- High junction temperature capability
- Trench MOS Schottky technology
- Single die in TO-277B Package
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/ JEDEC J-STD-609A.01)

#### 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 *	$I_{R1}$	@ $V_R = \text{rated } V_R, T_J = 25^\circ\text{C}$	0.017	0.80	mA
	$I_{R2}$	@ $V_R = \text{rated } V_R, T_J = 125^\circ\text{C}$	15	100	
Junction Capacitance	$C_T$	@ $V_R = 5\text{V}, T_C = 25^\circ\text{C}, f_{SIG} = 1\text{MHz}$	656	-	pF

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

### Thermal-Mechanical Specifications

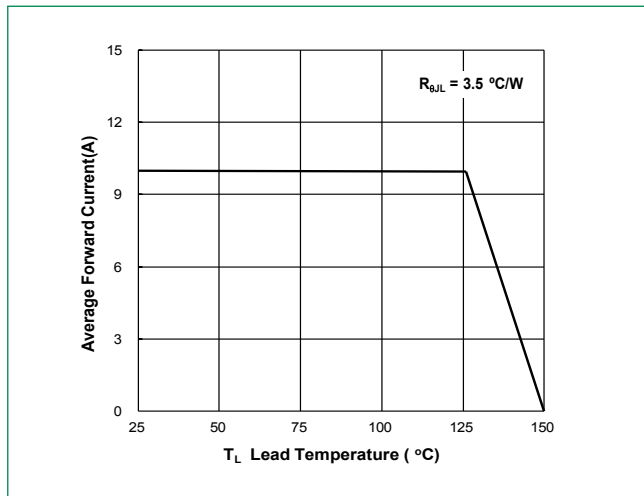
Parameters	Symbol	Test Conditions	Max	Unit
Junction Temperature	$T_J$		-55 to +150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C
Thermal Resistance Junction to Ambient	$R_{thJA}$	DC operation	75	°C/W
Typical Thermal Resistance Junction to Lead	$R_{thJL}^*$	DC operation	3.5	°C/W
Approximate Weight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

(1) Free air, mounted on recommended copper pad area; thermal resistance  $R_{thJA}$  - junction to ambient

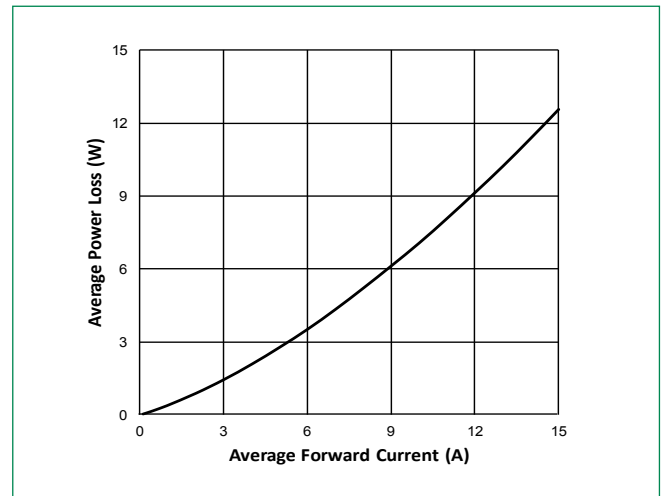
(2) Mounted on 30 mm x 30 mm pad areas aluminum PCB; thermal resistance  $R_{thJL}$  - junction to lead

\*Lead temperature monitored at the cathode pin

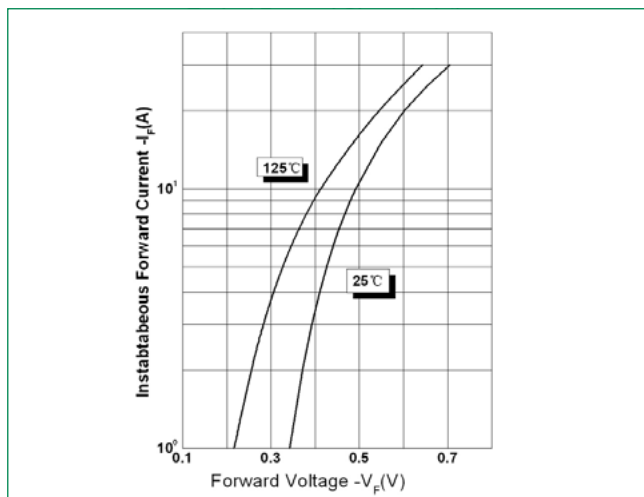
#### Figure 1: Forward Current Derating Curve



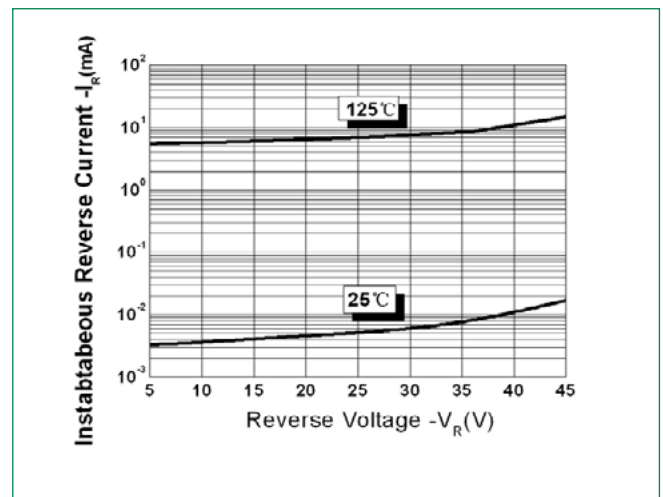
#### Figure 2: Forward Power Loss Characteristics



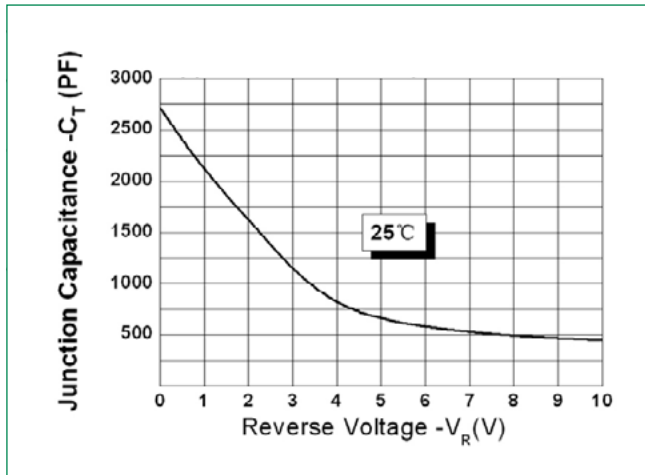
#### Figure 3: Typical Junction Capacitance



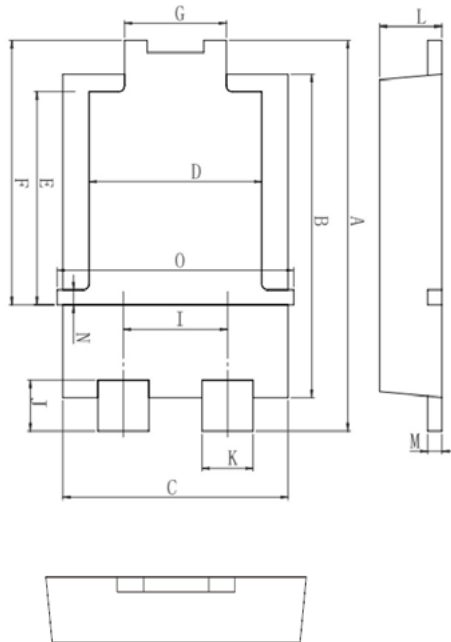
#### Figure 4: Typical Reverse Characteristics



**Figure 5: Typical Instantaneous Forward Voltage Characteristics**



### Dimensions-TO-277B



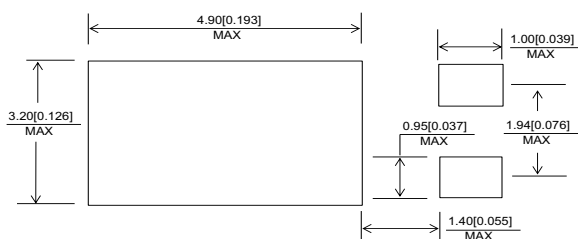
Symbol	Millimeters		
	Min	Typ	Max
A	6.30	6.50	6.70
B	5.28	5.38	5.48
C	3.88	3.98	4.08
D	2.90	3.05	3.20
E	3.40	3.55	3.70
F	4.20	4.40	4.60
G	1.70	1.80	1.90
I	1.74	1.84	1.94
J	0.65	0.85	1.05
K	0.85	0.90	0.95
L	0.95	1.10	1.25
M	0.20	0.25	0.30
N	0.25	0.40	0.55
O	4.00	4.05	4.25

### Part Numbering and Marking System



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

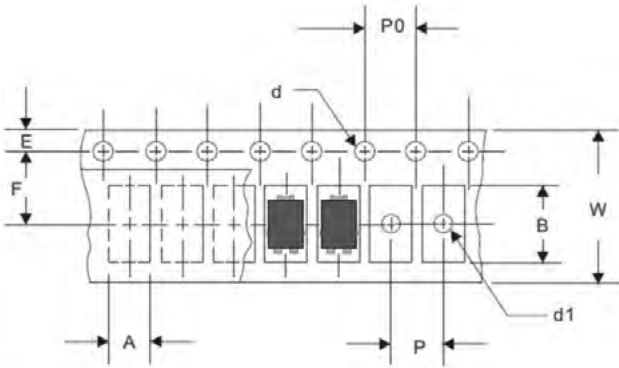
### Mounting Pad Layout



### Packing Options

Part Number	Marking	Packing Mode	M.O.Q
DST1045S	DST1045S	5000pcs / Reel	5000

### Carrier Tape & Reel Specification



Symbol	Millimeters	
	Min	Max
<b>A</b>	4.28	4.48
<b>B</b>	6.80	7.00
<b>d</b>	1.40	1.60
<b>d1</b>	-	1.50
<b>E</b>	1.65	1.85
<b>F</b>	5.40	5.60
<b>P</b>	7.90	8.10
<b>P0</b>	3.90	4.10
<b>W</b>	11.70	12.30