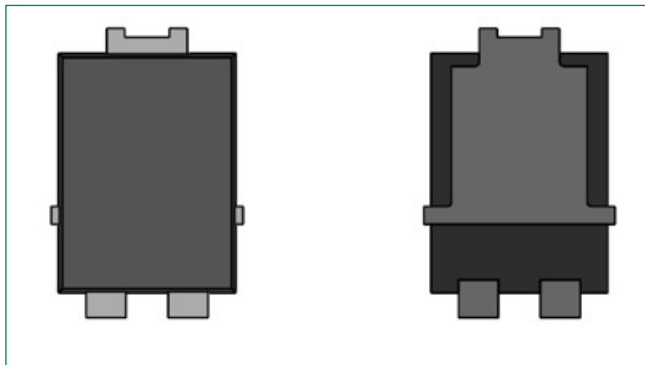
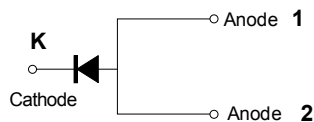


### DST2050S



#### 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	$V_{RWM}$	-	50	V
Average Forward Current	$I_{F(AV)}$	50% duty cycle @ $T_L = 125^\circ\text{C}$ rectangular wave form	20	A
Peak One Cycle Non-Repetitive Surge Current	$I_{FSM}$	8.3 ms, half Sine pulse	250	A

#### Electrical Characteristics

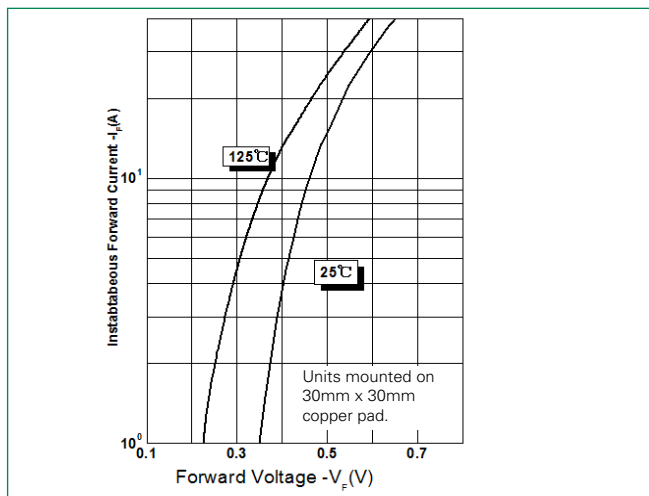
Parameters	Symbol	Test Conditions	Max	Unit
Forward Voltage Drop*	$V_{F1}$	@20A, Pulse, $T_J = 25^\circ\text{C}$	0.65	V
	$V_{F2}$	@20A, Pulse, $T_J = 125^\circ\text{C}$	0.60	
Reverse Current*	$I_{R1}$	@ $V_R = \text{rated } V_R$ , $T_J = 25^\circ\text{C}$	4	mA
	$I_{R2}$	@ $V_R = \text{rated } V_R$ , $T_J = 125^\circ\text{C}$	180	

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

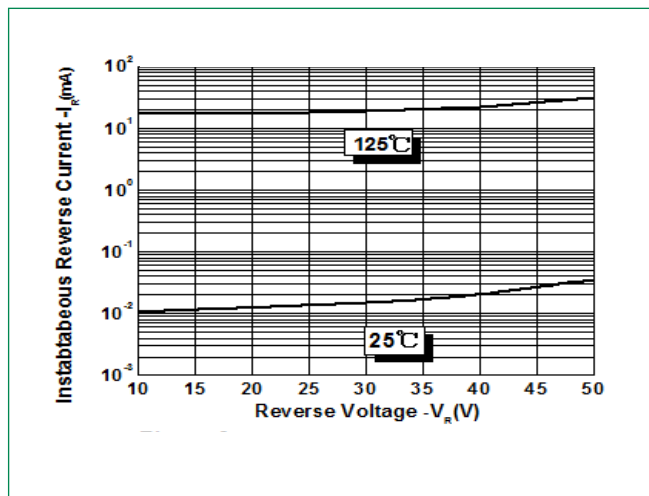
## Thermal-Mechanical Specifications

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

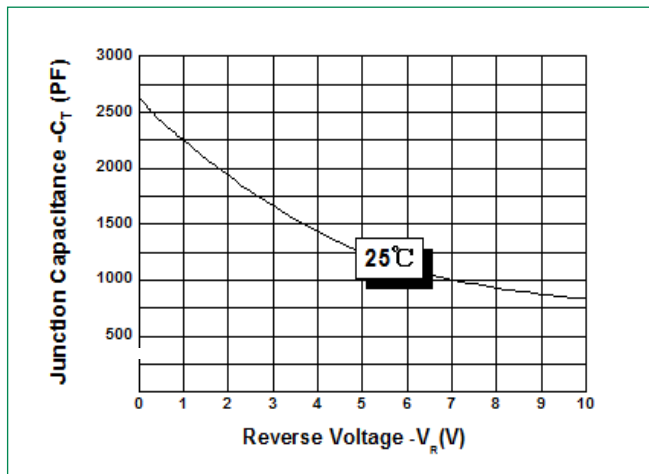
### Figure 1: Typical Forward Characteristics



### Figure 2: Typical Reverse Characteristics

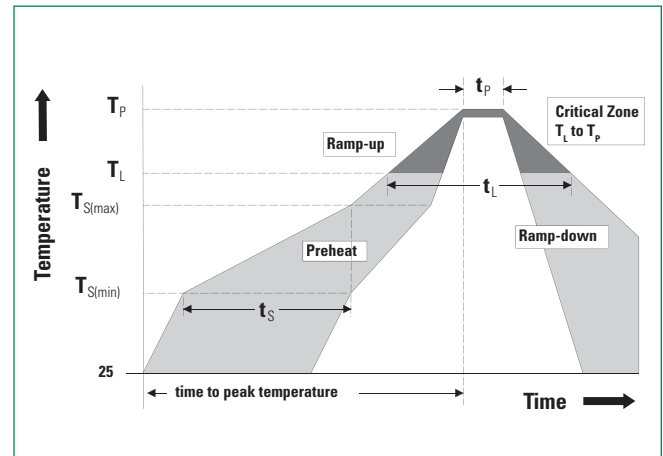


### Figure 3: Typical Junction Capacitance

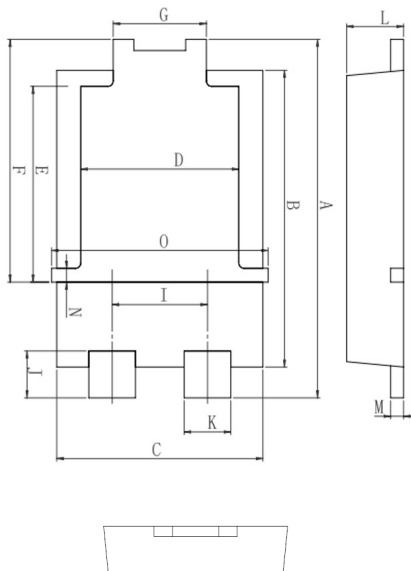


## Soldering Parameters

<b>Reflow Condition</b>		Lead-Free assembly
<b>Pre Heat</b>	- Temperature Min ( $T_{s(min)}$ )	150°C
	- Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $t_s$ )	60 – 120 seconds
<b>Average ramp up rate (Liquidus Temp) (<math>T_L</math>) to peak</b>		3°C/second max.
<b><math>T_{s(max)}</math> to <math>T_L</math> - Ramp-up Rate</b>		3°C/second max.
<b>Reflow</b>	- Temperature ( $T_L$ ) (Liquidus)	217°C
	- Time (min to max) ( $t_s$ )	60 – 150 seconds
<b>Peak Temperature (<math>T_p</math>)</b>		260 <sup>+0/-5</sup> °C
<b>Time within 5°C of actual peak Temperature (<math>t_p</math>)</b>		30 seconds max.
<b>Ramp-down Rate</b>		6°C/second max.
<b>Time 25°C to peak Temperature (<math>T_p</math>)</b>		8 minutes max.
<b>Do not exceed</b>		260°C

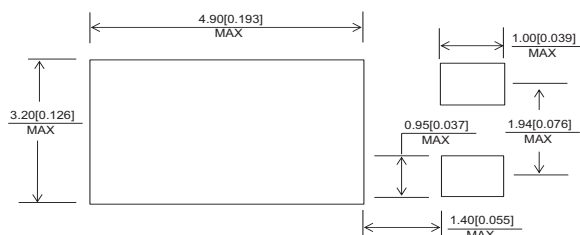


## Dimensions-TO-277B



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



### Packing Options

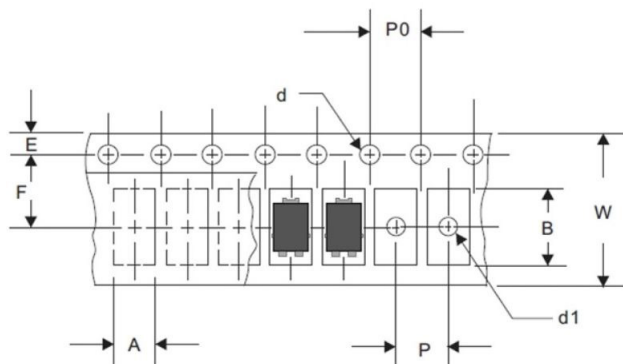
Part Number	Marking	Packing Mode	M.O.Q
DST2050S	DST2050S	5000pcs / Reel	5000

### Part Numbering and Marking System



DST = Device Type  
 20 = Forward Current (20A)  
 50 = Reverse Voltage (50V)  
 S = Package Type  
 LF = Littelfuse  
 YY = Year  
 WW = Week  
 L = Lot Number

### 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