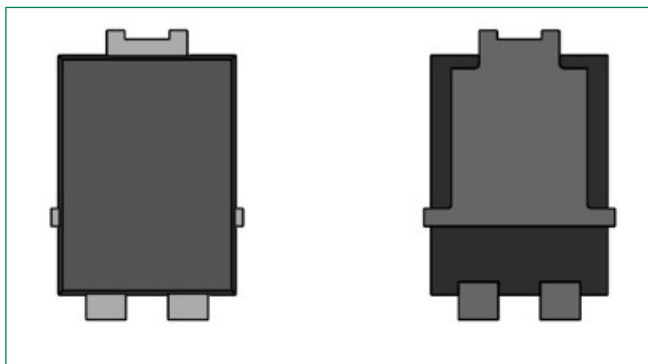
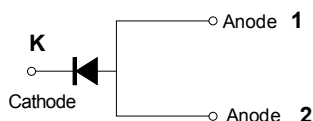


DST2050S



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 μs , 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

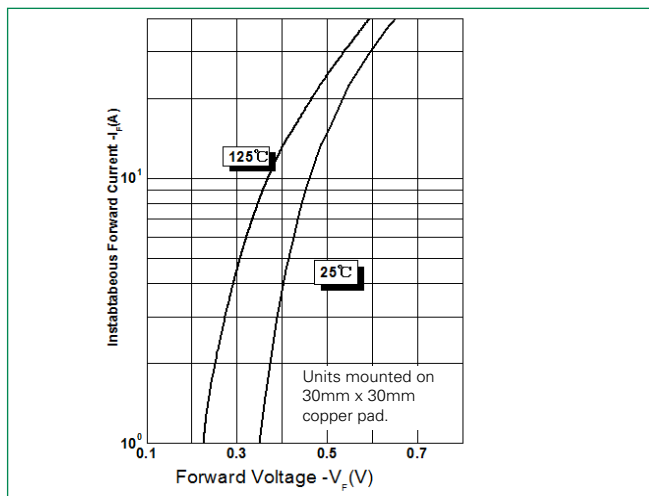


Figure 2: Typical Reverse Characteristics

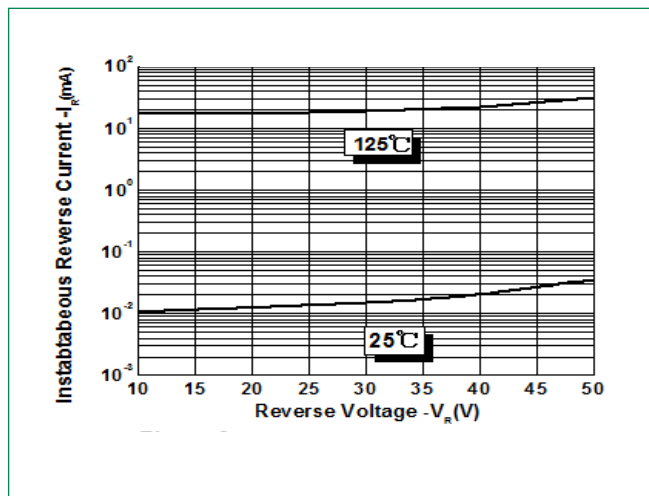
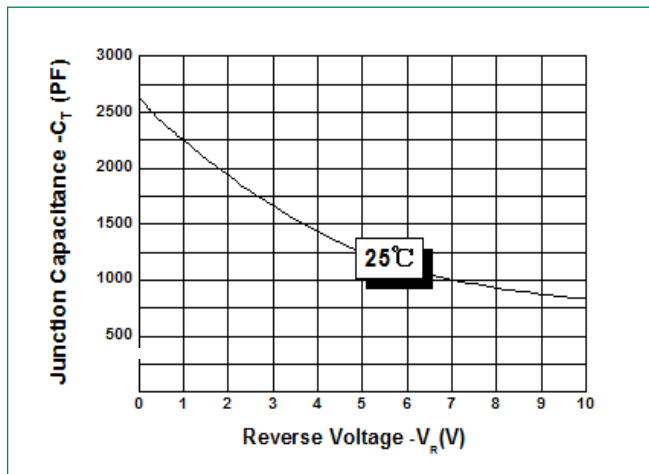
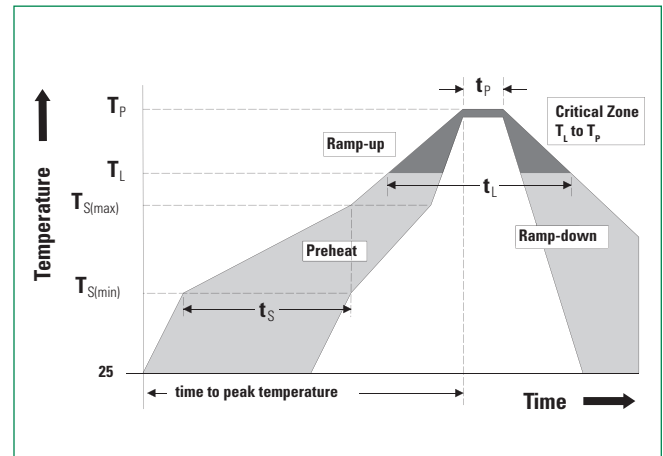


Figure 3: Typical Junction Capacitance

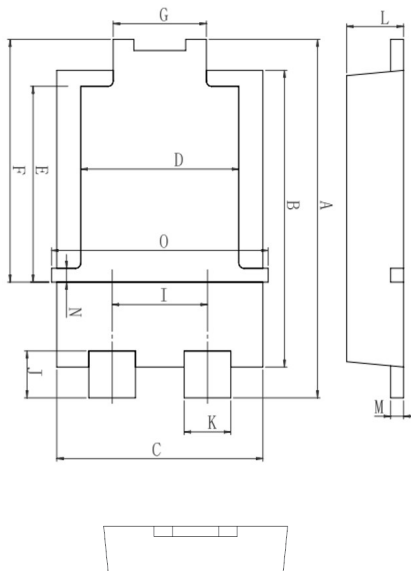


Soldering Parameters

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

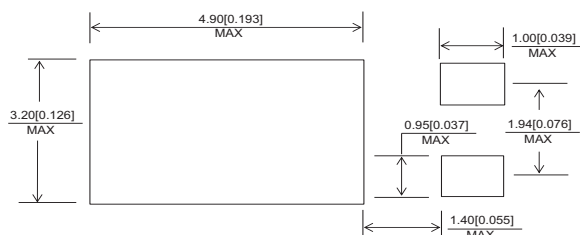


Dimensions-TO-277B



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

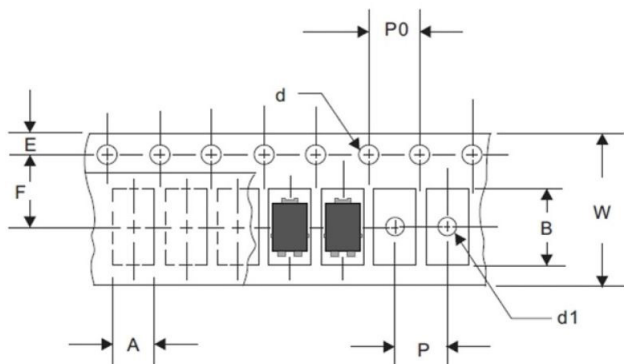
Part Number	Marking	Packing Mode	M.O.Q
DST2050S	DST2050S	5000pcs / Reel	5000

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
A	4.28	4.48
B	6.80	7.00
d	1.40	1.60
d1	-	1.50
E	1.65	1.85
F	5.40	5.60
P	7.90	8.10
P0	3.90	4.10
W	11.70	12.30