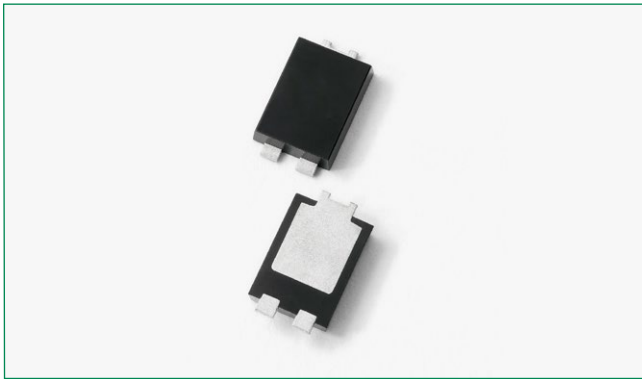


### DST5100S-A

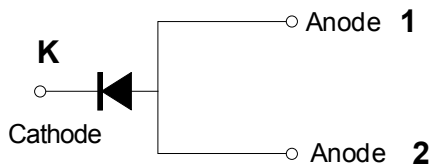


#### Description

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

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

#### Features



#### Features

- High reliability application and AEC-Q101 qualified
- Ultra low forward voltage drop
- High frequency operation
- MSL: Level 1 - unlimited
- High junction temperature capability
- Trench MOS Barrier 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	$V_{RWM}$	-	100	V
Average Forward Current (per device) *	$I_{F(AV)}$	50% duty cycle @ $T_A = 25^\circ\text{C}$ rectangular wave form	5	A
Peak One Cycle Non-Repetitive Surge Current (per leg)	$I_{FSM}$	8.3 ms, half Sine pulse	120	A

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

#### Electrical Characteristics

Parameters	Symbol	Test Conditions	Typ	Max	Unit
Forward Voltage Drop (per leg) *	$V_{F1}$	@5A, Pulse, $T_J = 25^\circ\text{C}$	0.69	0.75	V
	$V_{F2}$	@5A, Pulse, $T_J = 125^\circ\text{C}$	0.61	0.70	
Reverse Current (per leg) *	$I_{R1}$	@ $V_R = \text{rated } V_R, T_J = 25^\circ\text{C}$	0.06	0.12	mA
	$I_{R2}$	@ $V_R = \text{rated } V_R, T_J = 125^\circ\text{C}$	2	18	
Junction Capacitance (per leg)	$C_T$	@ $V_R = 5V, T_C = 25^\circ\text{C}, f_{SIG} = 1\text{MHz}$	245	-	pF
Voltage Rate of Change	dv/dt		-	10000	V/ $\mu\text{s}$

\* 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	$R_{\theta JA}$	DC operation	75	°C/W
Maximum Thermal Resistance Junction to Lead	$R_{\theta JL}^*$		4	°C/W
Approximate Weight	wt	-	0.08	g
Case Style	TO-277B			

\*Lead temperature monitored at the cathode pin

Figure 1: Forward Current Derating Curve

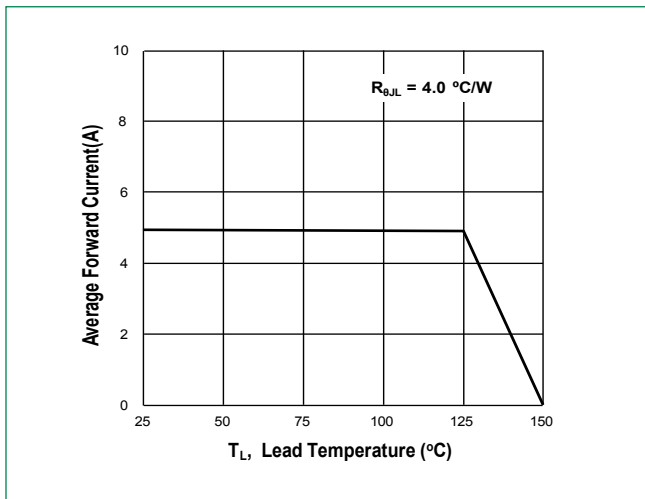


Figure 2: Forward Power Loss Characteristics

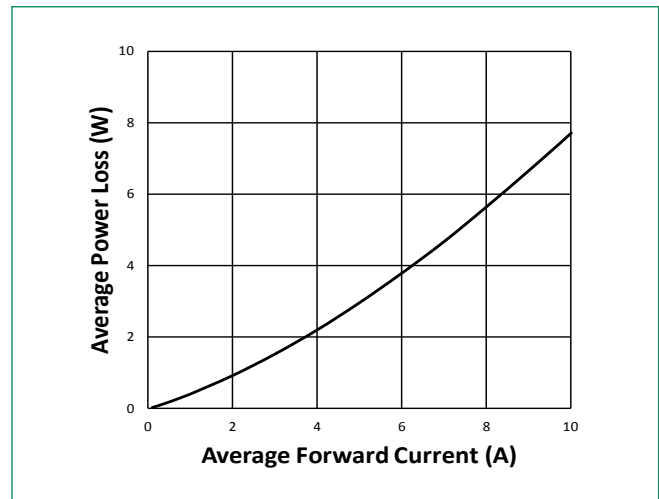


Figure 3: Typical Junction Capacitance

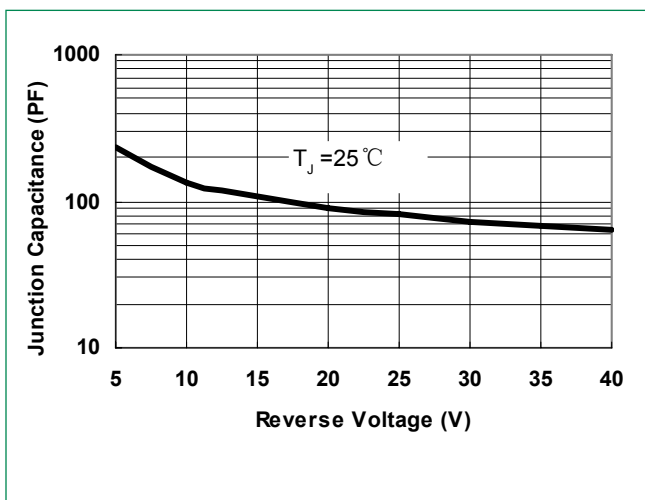
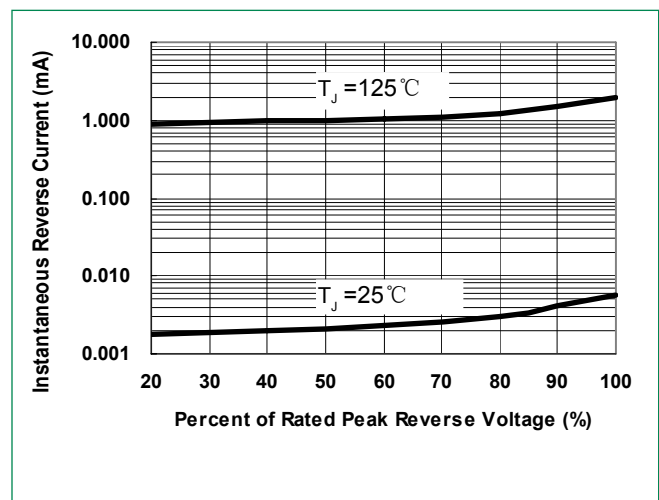
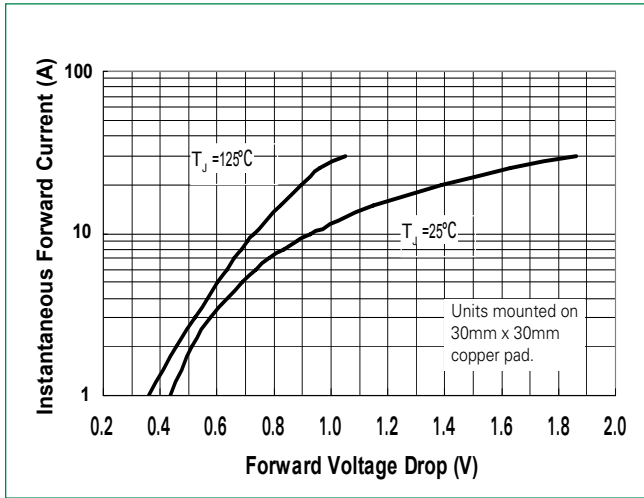


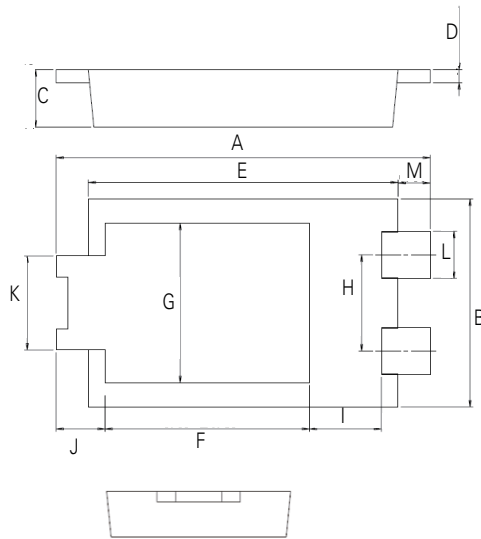
Figure 4: Typical Reverse Characteristics



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

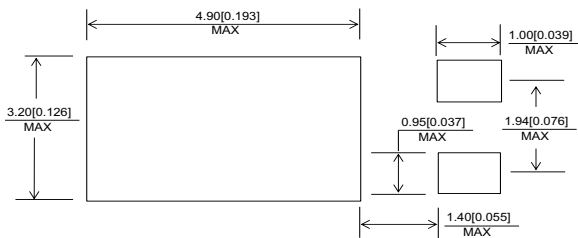


**Dimensions-TO-277B**

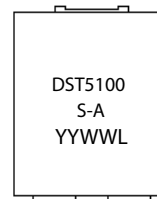


Symbol	Millimeters		
	Min	Typ	Max
A	6.30	6.50	6.70
B	3.88	3.98	4.08
C	0.95	1.10	1.25
D	0.20	0.25	0.30
E	5.28	5.38	5.48
F	3.40	3.55	3.70
G	2.90	3.05	3.20
H	1.74	1.84	1.94
I	1.10	1.25	1.40
J	-	0.85	-
K	1.70	1.80	1.90
L	0.85	0.90	0.95
M	-	0.56	-

**Mounting Pad Layout**



**Part Numbering and Marking System**

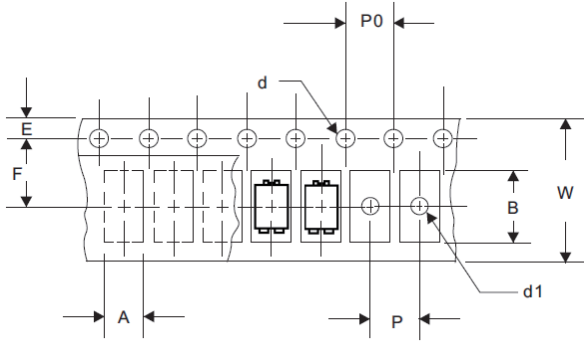


- DST = Device Type
- 5 = Forward Current (5A)
- 100 = Reverse Voltage (100V)
- S = Package Type
- A = AEC-Q101 qualified device
- YY = Year
- WW = Week
- L = Lot Number

### Packing Options

Part Number	Marking	Packing Mode	M.O.Q
DST5100S-A	DST5100S-A	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>	7.40	7.60
<b>P</b>	7.90	8.10
<b>P0</b>	3.90	4.10
<b>W</b>	15.70	16.30