

## 1. Synopsis

### 1-1. Feature List

- Soft, Fast Switching Capability
- Low Forward Voltage Drop
- 100-Volts Reverse
- High Frequency Operation

### 1-2. Applications

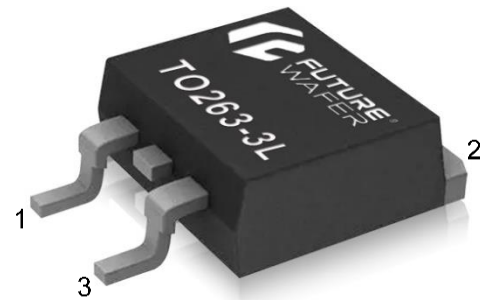
- Switch Mode Power Supply
- Power Factor Correction
- Solar Inverter
- Uninterruptible Power Supply
- High Efficiency DC/DC Converters
- Motor Drivers

### 1-3. Benefits

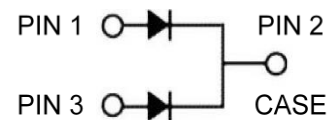
- Essentially No Switching Losses
- Higher Efficiency
- Reduction Of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway
- Higher System Reliability Due To Lower Operating Temperatures

### 1-4. Mechanical Characteristics

- Molded JEDEC TO263-3L Package:
- Packing: Tape and Reel
- Flammability rating UL 94V-0
- Halogen Free
- JEDEC MSL Classification: Level 1



TO263-3L  
(D<sup>2</sup>PAK)



---

**2. Contents**

<b>1. Synopsis</b> .....	1
1-1. Feature List .....	1
1-2. Applications.....	1
1-3. Benefits.....	1
1-4. Mechanical Characteristics .....	1
<b>2. Contents</b> .....	2
<b>3. Electrical Property</b> .....	3
3-1. Absolute Maximum Ratings .....	3
3-2. Electrical Characteristics .....	3
3-3. Thermal Characteristics.....	3
3-4. Ratings and Characteristics Curve .....	4
<b>4. Soldering Parameters</b> .....	5
<b>5. Package Information</b> .....	6
<b>6. Ordering Information</b> .....	7
<b>7. Version</b> .....	7
7-1. History.....	7
7-2. Company Profile .....	7

### 3. Electrical Property

#### 3-1. Absolute Maximum Ratings

Maximum Ratings@25°C Unless Otherwise Specified						
Parameter	Symbol	Test Condition	Values			Units
			Min.	Max.		
Repetitive Peak Reverse Voltage	$V_{RRM}$	-	100	-		V
Average Forward Current	$I_F$ , Per Leg	$T_C = 110^\circ\text{C}$	-	10		A
	$I_F$ , Total		-	20		
Surge Non-Repetitive Forward Current	$I_{FSM}$	$t_p = 8.3\text{ms}$	-	150		
Operating Temperature	$T_J$	-	-65 ~ +175			°C
Storage Temperature	$T_{STG}$	-				

#### 3-2. Electrical Characteristics

Parameter	Symbol	Test Condition	Values			Units	
			Min.	Typ.	Max.		
Breakdown Voltage	$V_{BR}$	$I_R = 500\mu\text{A}$ $T_J = 25^\circ\text{C}$	100	-	-	V	
Diode Forward Voltage	$V_F$	$I_F = 10\text{A}$	-	0.81	0.85		
		$I_F = 20\text{A}$	-	0.92	0.95		
Reverse Current	$I_R$	$V_R = 100\text{V}$	$T_J = 25^\circ\text{C}$	-	-	0.1	mA
			$T_J = 125^\circ\text{C}$	-	4	6	

#### 3-3. Thermal Characteristics

Parameter	Symbol	Values			Units
		Min.	Typ.	Max.	
Thermal Resistance, Junction-Case	$R_{thJC}$	-	2.0	-	°C/W
Thermal Resistance, Junction-Ambient	$R_{thJA}$	-	50	-	

**3-4. Ratings and Characteristics Curve**

Fig 1. Maximum Forward Current Derating Curve

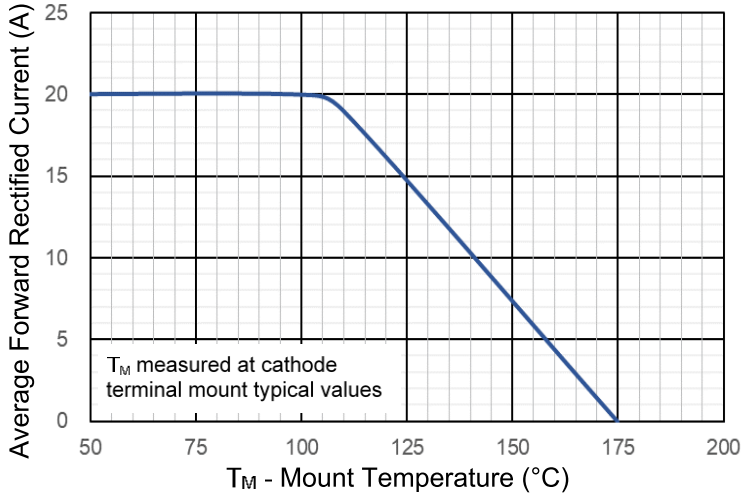


Fig 2. Typical Instantaneous Forward Characteristics

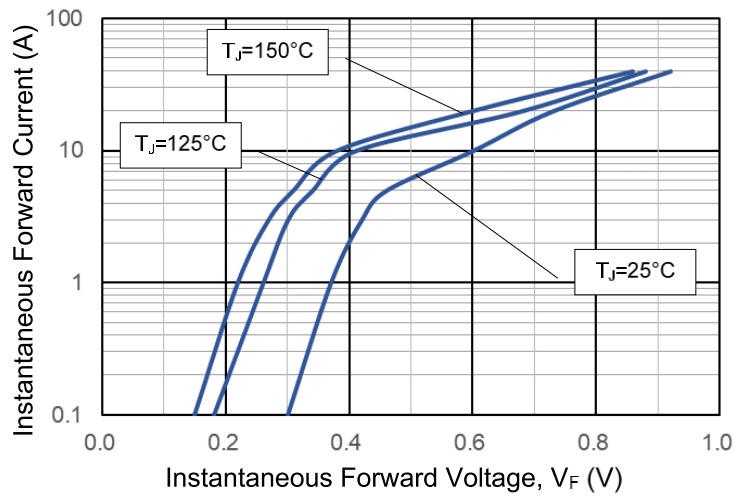


Fig 3. Typical Reverse Current Characteristics

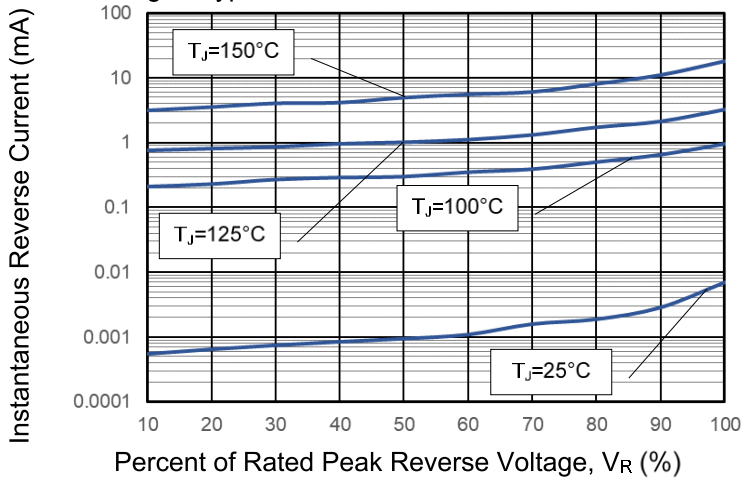


Fig 4. Typical Junction Capacitance

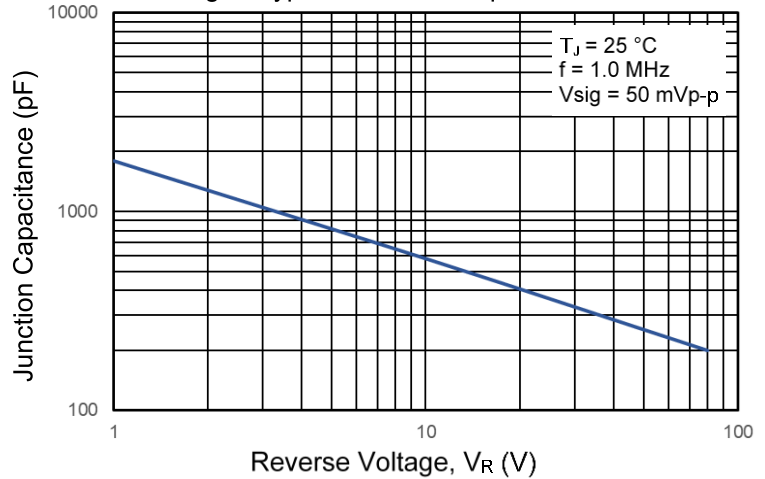


Fig 5. Forward Power Loss Characteristics

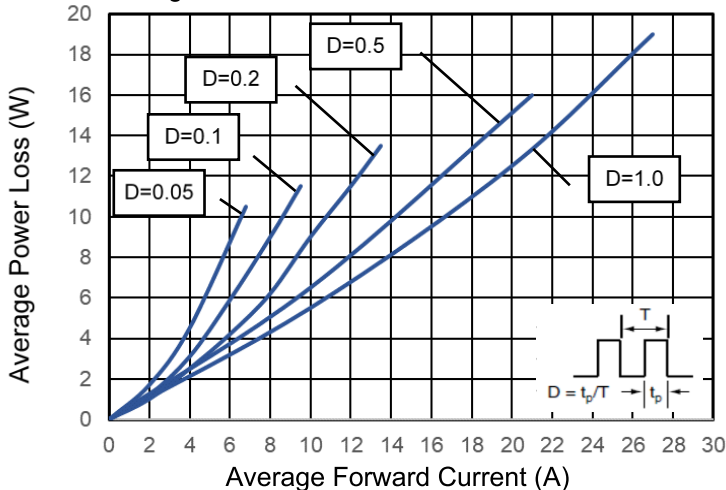
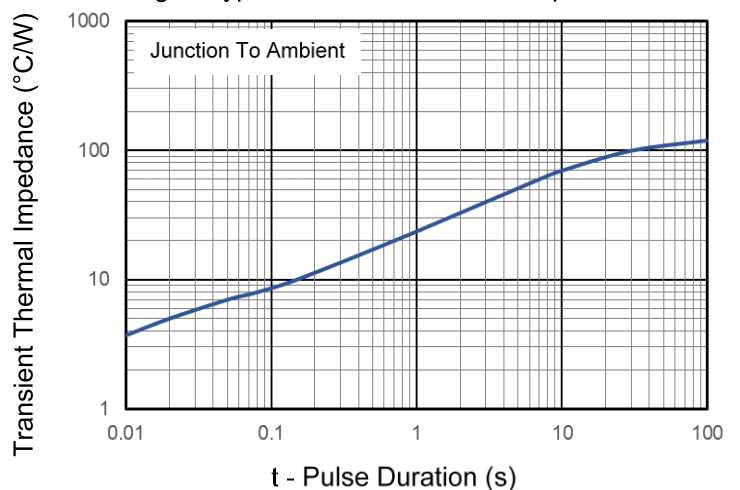


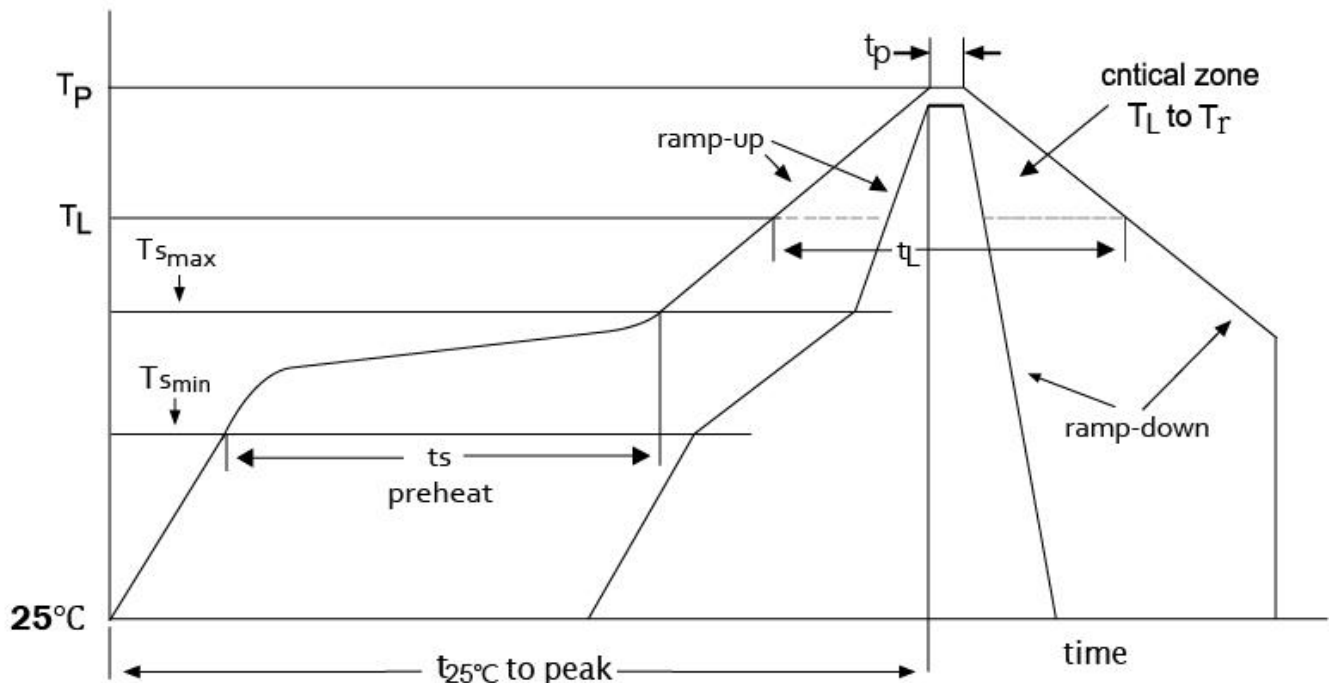
Fig 6. Typical Transient Thermal Impedance



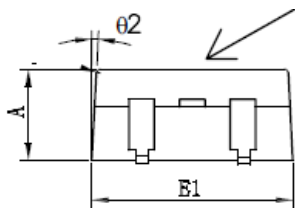
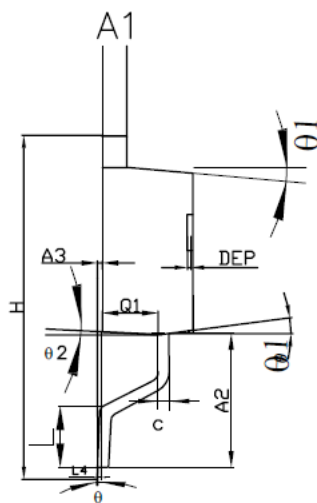
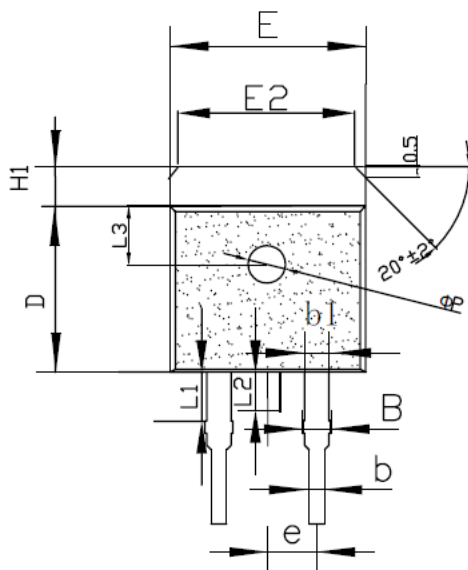
#### 4. Soldering Parameters

Profile Feature	SnPb eutectic assembly	Pb-free assembly
Average ramp-up rate (T <sub>smax</sub> to T <sub>p</sub> )	3 °C/s maximum	3 °C/s maximum
Preheat		
Temperature minimum (T <sub>smin</sub> )	100 °C	150 °C
Temperature maximum (T <sub>smax</sub> )	150 °C	200 °C
Time (t <sub>smin</sub> to t <sub>smax</sub> )	60 s to 120 s	60 s to 180 s
Time maintained above		
Temperature (T <sub>L</sub> )	183 °C	217 °C
Time (t <sub>L</sub> )	60 s to 150 s	60 s to 150 s
Peak/classification temperature (T)	235 °C	260 °C
Number of allowed reflow cycles	3	3
Time within 5 °C of actual peak temperature (t <sub>p</sub> )	10 s to 30 s	20 s to 40 s
Ramp-down rate	6 °C/s maximum	6 °C/s maximum
Time 25 °C to peak temperature	6 minutes maximum	8 minutes maximum

temperature



### 5. Package Information



Symbol	Millimeter	
	Min.	Max.
A	4.40	4.70
A1	1.22	1.32
b	0.77	0.90
b1	1.20	1.36
B	1.27	1.40
c	0.34	0.47
L4	0.25BSC	
A3	0.00	0.20
A2	4.93	5.33
E	10.00	10.26
E1	10.00	10.20
H1	1.17	1.40
D	8.60	8.80
E2	8.34	9.34
e	2.49	2.59
L	2.00	2.60
L1	2.03	2.43
L2	1.45	1.70
Q	2.59	2.79
Ø1	5°	9°
Ø2	1°	5°
ΦP	1.40	1.60
Ø	0°	8°
H	14.7	15.5
DEP	0.05	0.20

## 6. Ordering Information

Part Number	Marking Code	Quantity	Component Package	Packaging Option
SBR20L100DPC	S20L10C	800PCS	TO-263(D <sup>2</sup> PAK)	13" Tape@Reel

## 7. Version

### 7-1. History

Version	Date	File No.	Recording	Basis
A	12-Jan-2019	F21941S	New Create	Market
2.0	08-Apr-2021		Update Version	System
2.1	28-Sep-2021		Update Version	System