

## 20A, 60V Trench Schottky Surface Mount Rectifier

### FEATURES

- Patented Trench Schottky technology
- Excellent high temperature stability
- Low forward voltage
- Lower power loss/ high efficiency
- High forward surge capability
- Ideal for automated placement
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- DC to DC converter

### MECHANICAL DATA

- Case: PDFN56
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.096g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	20	A
$V_{RRM}$	60	V
$I_{FSM}$	200	A
$T_{JMAX}$	150	°C
Package	PDFN56	
Configuration	Single die	



PDFN56



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	TSN520M60	UNIT
Marking code on the device		520M60	
Repetitive peak reverse voltage	$V_{RRM}$	60	V
Reverse voltage, total rms value	$V_{R(RMS)}$	42	V
Forward current	$I_F$	20	A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	200	A
Junction temperature	$T_J$	- 55 to +150	°C
Storage temperature	$T_{STG}$	- 55 to +150	°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-lead thermal resistance	$R_{\theta JL}$	7	°C/W

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
<b>PARAMETER</b>	<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage <sup>(1)</sup>	$I_F = 10\text{A}, T_J = 25^\circ\text{C}$	$V_F$	0.43	-	V
	$I_F = 20\text{A}, T_J = 25^\circ\text{C}$		0.48	0.58	V
	$I_F = 10\text{A}, T_J = 125^\circ\text{C}$		0.33	-	V
	$I_F = 20\text{A}, T_J = 125^\circ\text{C}$		0.42	0.52	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	500	$\mu\text{A}$
	$T_J = 125^\circ\text{C}$		-	100	mA

**Notes:**

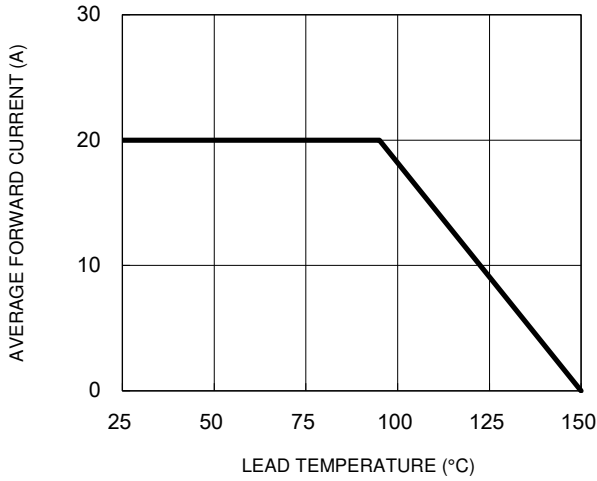
1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE</b>	<b>PACKAGE</b>	<b>PACKING</b>
TSN520M60	PDFN56	6,000 / Tape & Reel

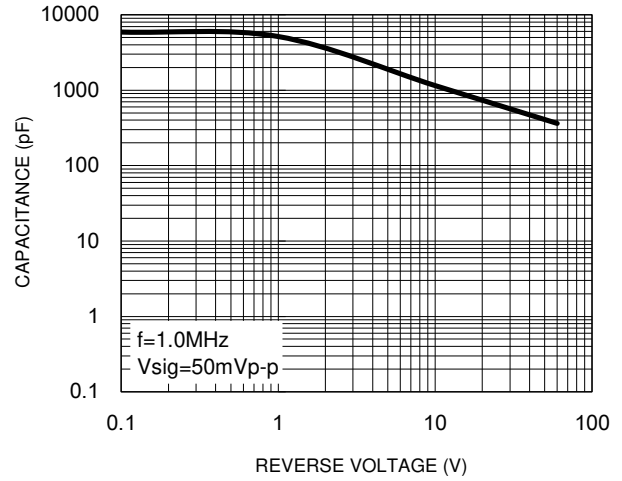
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

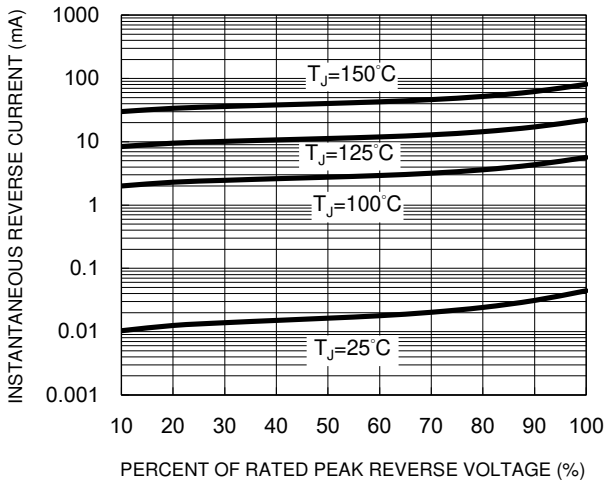
**Fig.1 Forward Current Derating Curve**



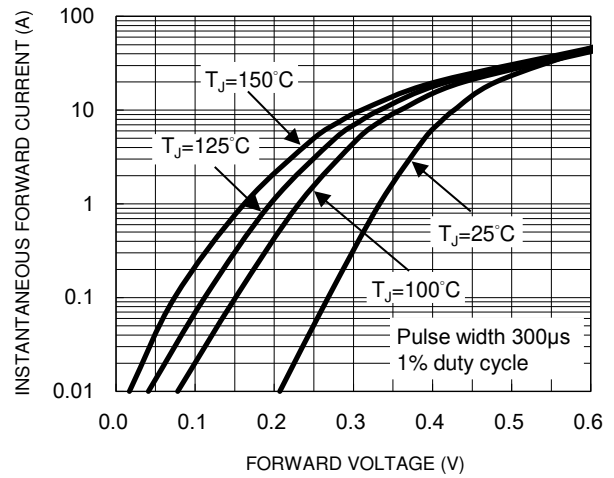
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**

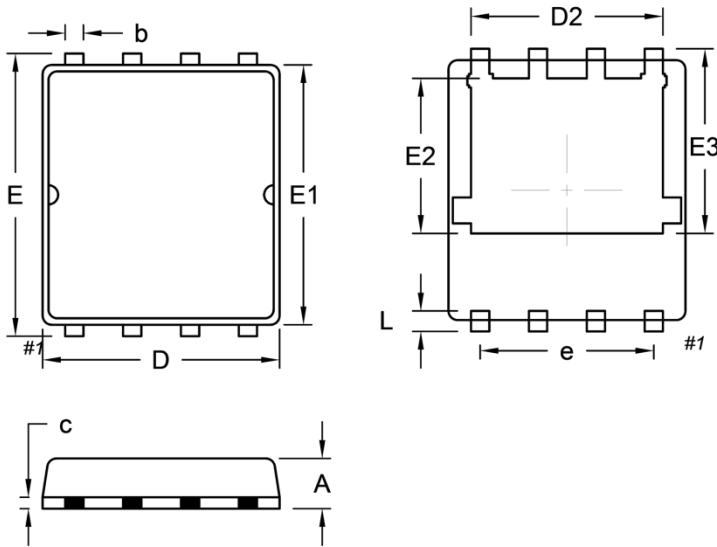


**Fig.4 Typical Forward Characteristics**



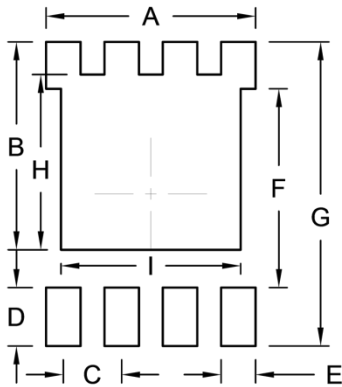
**PACKAGE OUTLINE DIMENSIONS**

PDFN56



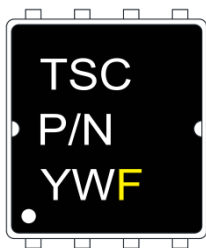
DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	0.95	1.25	0.037	0.049
b	0.25	0.55	0.010	0.022
c	0.10	0.40	0.004	0.016
D	5.05	5.35	0.199	0.211
D2	4.06	4.36	0.160	0.172
E	6.00	6.40	0.236	0.252
E1	5.55	5.85	0.219	0.230
E2	3.25	3.55	0.128	0.140
E3	3.90	4.20	0.154	0.165
e	3.81(TYP.)		0.150(TYP.)	
L	0.30	0.60	0.012	0.024

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	4.56	0.180
B	4.52	0.178
C	1.27	0.050
D	1.27	0.050
E	0.75	0.030
F	4.32	0.170
G	6.61	0.260
H	3.81	0.150
I	3.91	0.154

**MARKING DIAGRAM**



- P/N = Marking Code
- YW = Date Code
- F = Factory Code

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