

## 10A, 20V - 150V Schottky Barrier Rectifier

### FEATURES

- AEC-Q101 qualified available
- Low power loss, high efficiency
- Guard ring for overvoltage protection
- High surge current capability
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

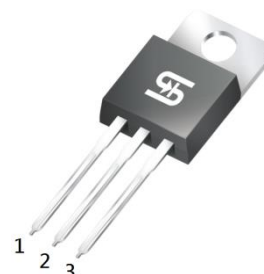
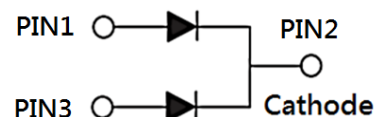
### APPLICATIONS

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

### MECHANICAL DATA

- Case: TO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.80g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	10	A
$V_{RRM}$	20 - 150	V
$I_{FSM}$	120	A
$T_{JMAX}$	125, 150	°C
Package	TO-220AB	
Configuration	Dual dies	


**TO-220AB**


ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)											
PARAMETER	SYMBOL	SR 1020	SR 1030	SR 1040	SR 1050	SR 1060	SR 1090	SR 10100	SR 10150	UNIT	
Marking code on the device		SR 1020	SR 1030	SR 1040	SR 1050	SR 1060	SR 1090	SR 10100	SR 10150		
Repetitive peak reverse voltage	$V_{RRM}$	20	30	40	50	60	90	100	150	V	
Reverse voltage, total rms value	$V_{R(RMS)}$	14	21	28	35	42	63	70	105	V	
Forward current	$I_F$	10								A	
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	$I_{FSM}$	120								A	
Critical rate of rise of off-state voltage	dv/dt	10,000								V/ $\mu\text{s}$	
Junction temperature	$T_J$	-55 to +125			-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-case thermal resistance	$R_{\theta JC}$	3	°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 per diode <sup>(1)</sup>	SR1020 SR1030 SR1040	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	0.55	V	
	SR1050 SR1060			-	0.70	V	
	SR1090 SR10100			-	0.85	V	
	SR10150			-	0.95	V	
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	SR1020 SR1030 SR1040 SR1050 SR1060	$T_J = 25^\circ\text{C}$	$I_R$	-	500	$\mu\text{A}$	
	SR1090 SR10100 SR10150	$T_J = 100^\circ\text{C}$		-	100	$\mu\text{A}$	
	SR1020 SR1030 SR1040			$T_J = 125^\circ\text{C}$	-	10	mA
	SR1050 SR1060				-	5	mA
	SR1090 SR10100 SR10150	-			-	mA	
	SR1020 SR1030 SR1040 SR1050 SR1060	$T_J = 125^\circ\text{C}$		-	-	mA	
	SR1090 SR10100 SR10150			-	2	mA	

**Notes:**

1. Pulse test with  $PW = 0.3\text{ms}$
2. Pulse test with  $PW = 30\text{ms}$

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE</b> <sup>(1)(2)</sup>	<b>PACKAGE</b>	<b>PACKING</b>
SR10x	TO-220AB	50 / Tube
SR10xH	TO-220AB	50 / Tube

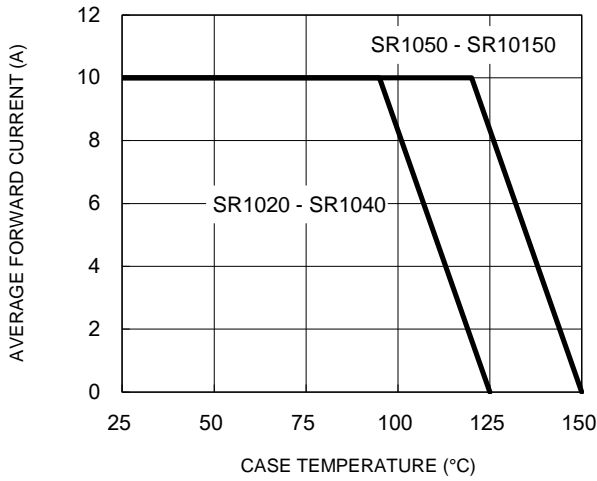
**Notes:**

1. "x" defines voltage from 20V(SR1020) to 150V(SR10150)
2. "H" means AEC-Q101 qualified

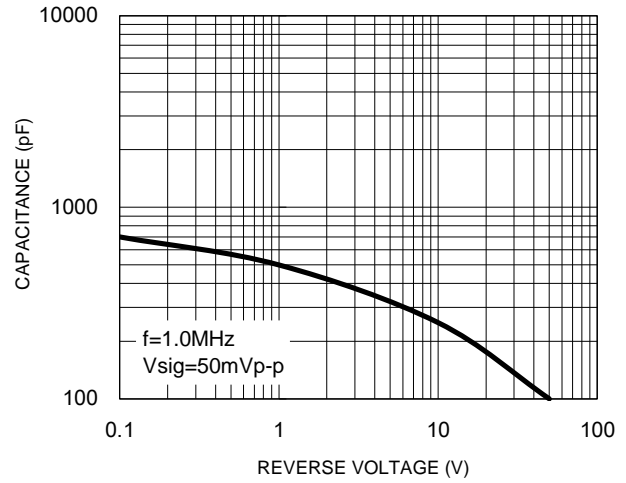
**CHARACTERISTICS CURVES**

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

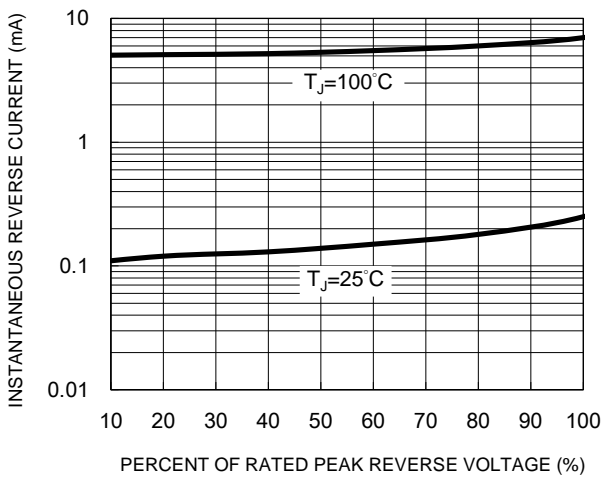
**Fig.1 Forward Current Derating Curve**



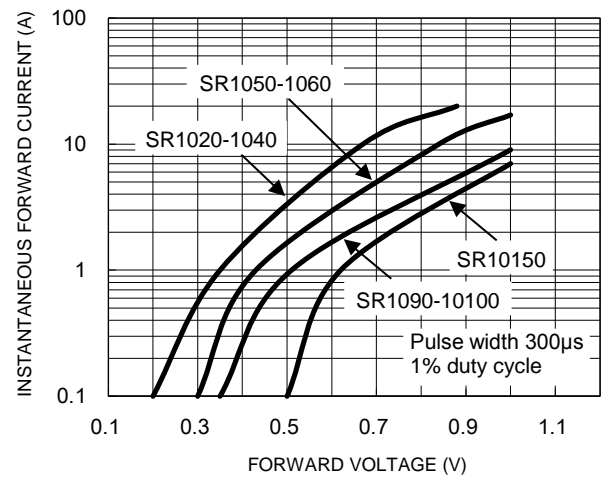
**Fig.2 Typical Junction Capacitance**



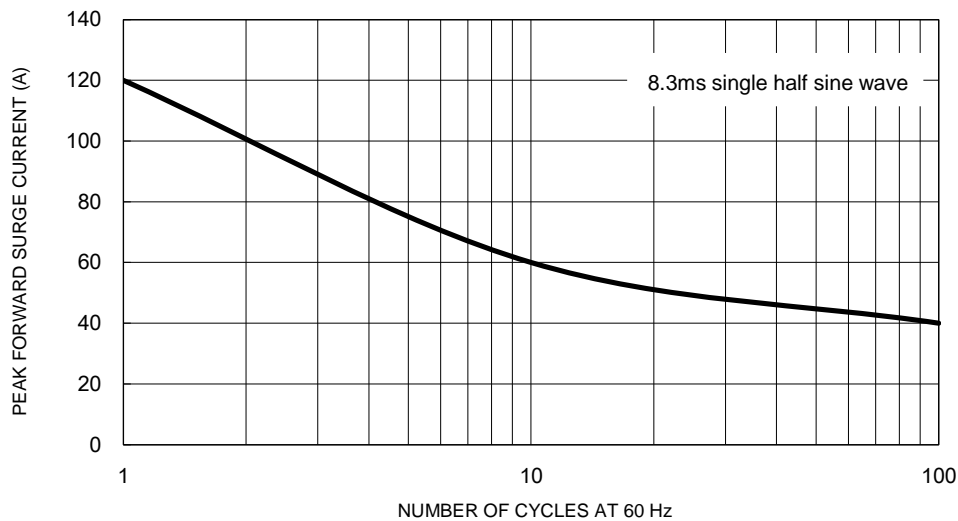
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



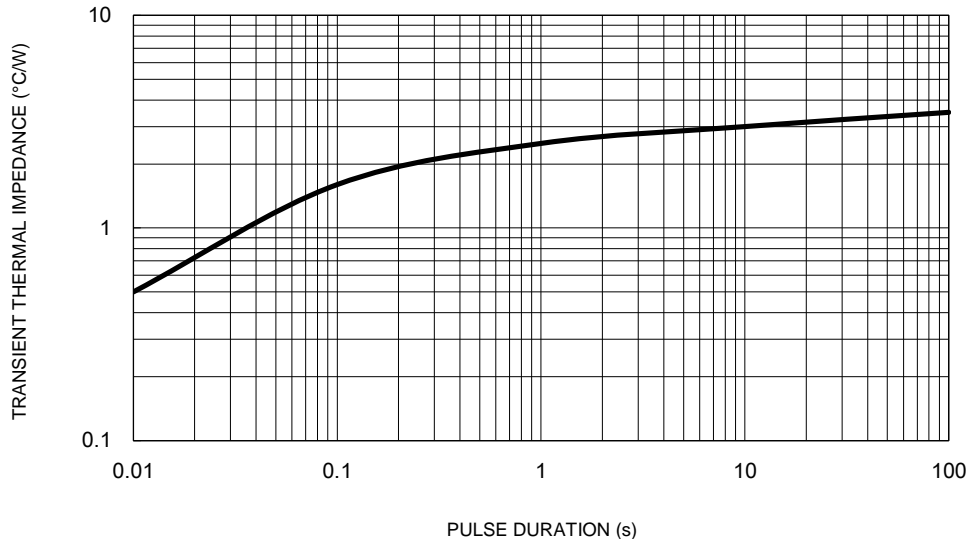
**Fig.5 Maximum Non-Repetitive Forward Surge Current**



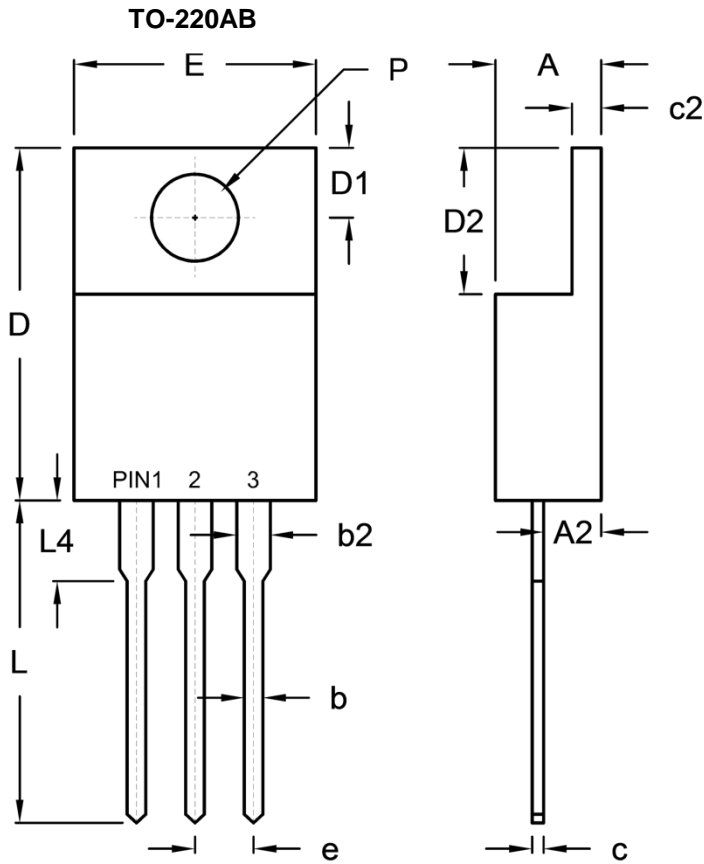
**CHARACTERISTICS CURVES**

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

**Fig.6 Typical Transient Thermal Impedance**



**PACKAGE OUTLINE DIMENSIONS**



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	4.42	4.76	0.174	0.187
A2	2.20	2.80	0.087	0.110
b	0.68	0.94	0.027	0.037
b2	1.14	1.77	0.045	0.070
c	0.35	0.64	0.014	0.025
c2	1.14	1.40	0.045	0.055
D	14.60	16.00	0.575	0.630
D1	2.62	3.44	0.103	0.135
D2	5.84	6.86	0.230	0.270
E	-	10.50	-	0.413
e	2.41	2.67	0.095	0.105
L	13.19	14.79	0.519	0.582
L4	2.80	4.20	0.110	0.165
P	3.54	4.00	0.139	0.157

**MARKING DIAGRAM**



- P/N = Marking Code
- G = Green Compound
- YWW = Date Code
- F = Factory Code

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