

## 5A, 20V - 200V Schottky Barrier Rectifier

### FEATURES

- AEC-Q101 qualified available
- Low forward voltage drop
- 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 converter

### MECHANICAL DATA

- Case: DO-201AD
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Pure tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 1.10g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	5	A
$V_{RRM}$	20 - 200	V
$I_{FSM}$	120	A
$T_{JMAX}$	125, 150	°C
Package	DO-201AD	
Configuration	Single die	



DO-201AD



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)											
PARAMETER	SYMBOL	SR 502	SR 503	SR 504	SR 505	SR 506	SR 509	SR 510	SR 515	SR 520	UNIT
Marking code on the device		SR 502	SR 503	SR 504	SR 505	SR 506	SR 509	SR 510	SR 515	SR 520	
Repetitive peak reverse voltage	$V_{RRM}$	20	30	40	50	60	90	100	150	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	14	21	28	35	42	63	70	105	140	V
Forward current	$I_F$	5									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-ambient thermal resistance	$R_{\theta JA}$	35	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	6	°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>	SR502 SR503 SR504	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	0.55	V
	SR505 SR506			-	0.70	V
	SR509 SR510			-	0.85	V
	SR515 SR520			-	1.05	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	SR502 SR503 SR504 SR505 SR506	$T_J = 25^\circ\text{C}$	$I_R$	-	500	$\mu\text{A}$
	SR509 SR510 SR515 SR520			-	100	$\mu\text{A}$
	SR502 SR503 SR504	$T_J = 100^\circ\text{C}$		-	15	mA
	SR505 SR506			-	10	mA
	SR509 SR510 SR515 SR520			-	-	mA
	SR502 SR503 SR504	$T_J = 125^\circ\text{C}$		-	-	mA
	SR505 SR506			-	-	mA
	SR509 SR510			-	5	mA
	SR515 SR520			-	1	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<sup>(1)(2)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
SR5x	DO-201AD	1,250 / Tape & Reel
SR5x A0G	DO-201AD	500 / Ammo box
SR5xH	DO-201AD	1,250 / Tape & Reel
SR5xHA0G	DO-201AD	500 / Ammo box

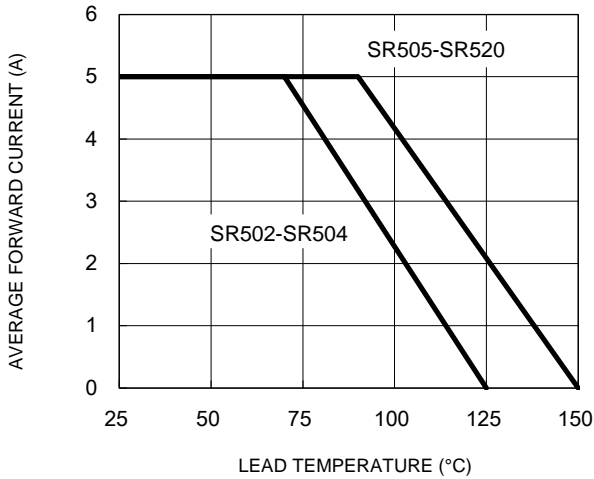
**Notes:**

1. "x" defines voltage from 20V (SR502) to 200V (SR520)
2. "H" means AEC-Q101 qualified

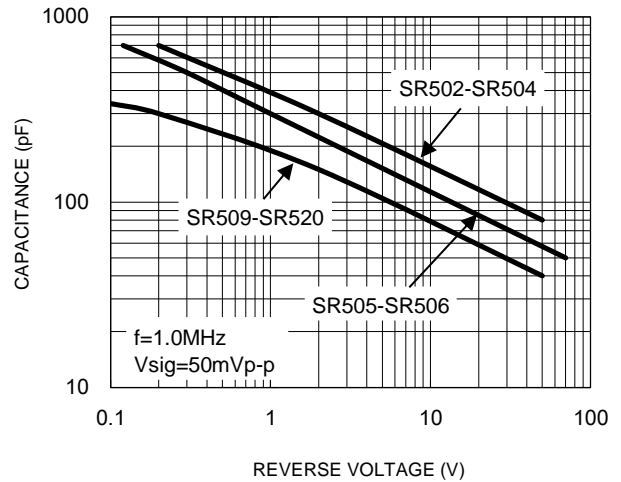
**CHARACTERISTICS CURVES**

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

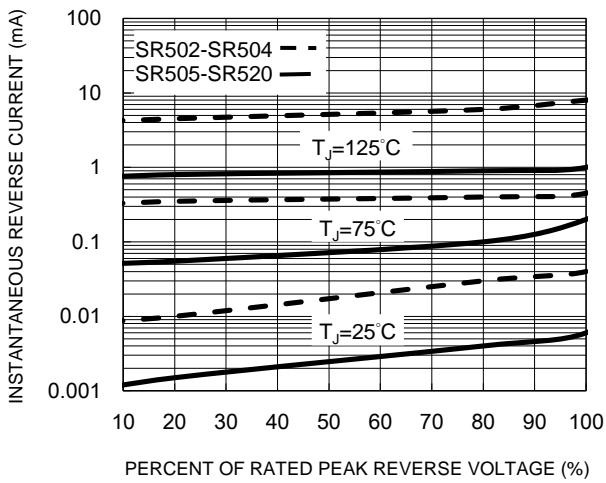
**Fig.1 Forward Current Derating Curve**



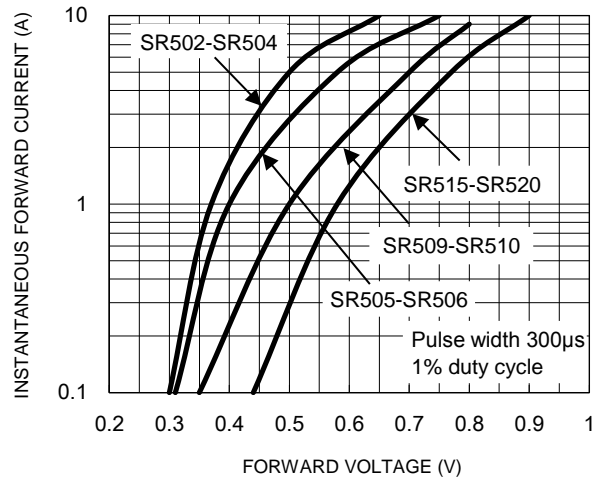
**Fig.2 Typical Junction Capacitance**



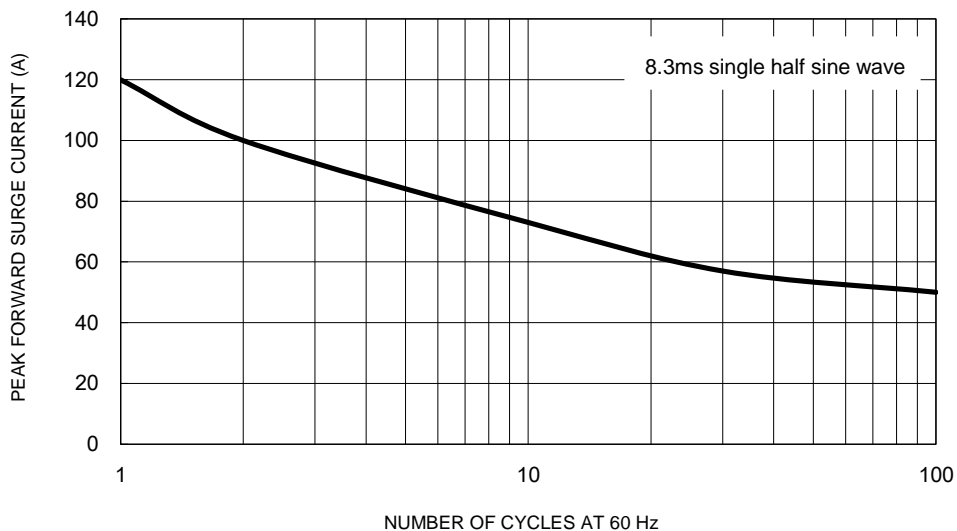
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



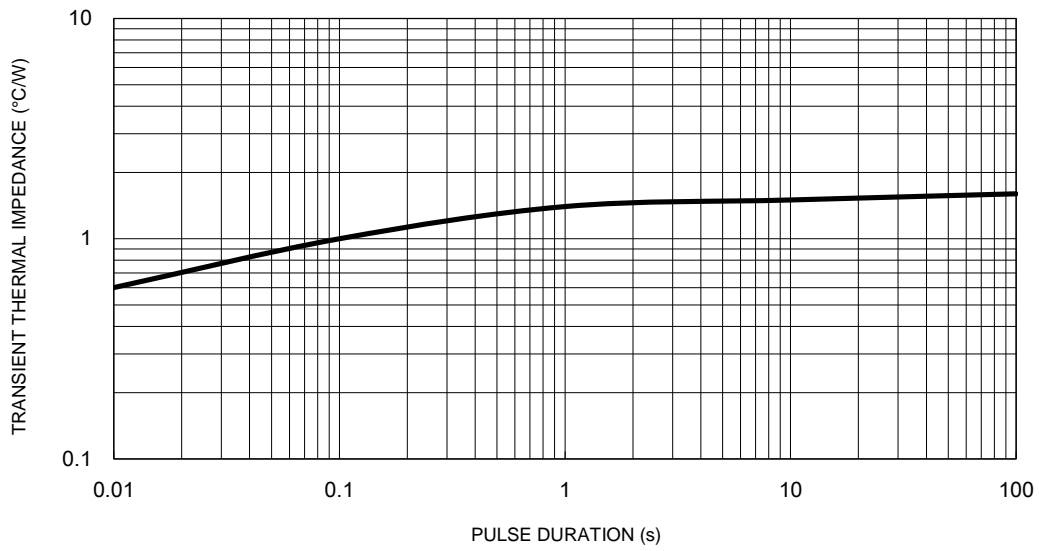
**Fig.5 Maximum Non-Repetitive Forward Surge Current**



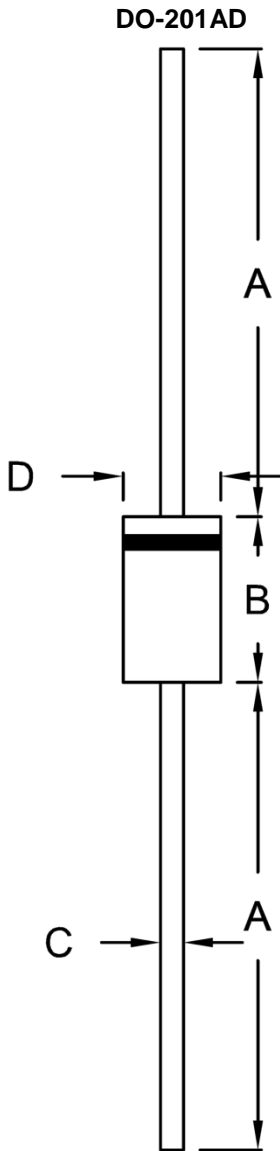
**CHARACTERISTICS CURVES**

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

**Fig.6 Typical Transient Thermal Characteristics**



**PACKAGE OUTLINE DIMENSIONS**



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	25.40	-	1.000	-
B	8.50	9.50	0.335	0.374
C	1.20	1.30	0.047	0.051
D	5.00	5.60	0.197	0.220

**MARKING DIAGRAM**



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

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