

## 50A, 45V Schottky Barrier Rectifier

### FEATURES

- AEC-Q101 qualified available
- Low forward voltage drop, high efficiency
- $T_J = 175^\circ\text{C}$  capability in DC forward mode suitable for high reliability
- Using planar Schottky barrier chip
- High surge capability
- Low cost construction utilizing void-free molded plastic technique
- RoHS Compliant

### APPLICATIONS

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

### MECHANICAL DATA

- Case: ARS
- 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: Indicated by cathode band
- Weight: 1.73g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	50	A
$V_{RRM}$	45	V
$I_{FSM}$	720	A
$T_{J\text{MAX}}$	175	$^\circ\text{C}$
Package	ARS	
Configuration	Single die	



ARS



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	ARS5045	UNIT
Marking code on the device		ARS5045	
Repetitive peak reverse voltage	$V_{RRM}$	45	V
Reverse voltage, total rms value	$V_{R(RMS)}$	31	V
Forward current	$I_F$	50	A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	720	A
Junction temperature	$T_J$	- 55 to +175	$^\circ\text{C}$
Storage temperature	$T_{STG}$	- 55 to +175	$^\circ\text{C}$

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-lead thermal resistance	$R_{\theta JL}$	2.5	°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>	$I_F = 50\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	0.55	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	500	$\mu\text{A}$
Junction capacitance	1MHz, $V_R = 4.0\text{V}$	$C_J$	2.7	-	nF
Reverse recovery time	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$	$t_{rr}$	150	-	ns

**Notes:**

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

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE<sup>(1)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
ARS5045	ARS	1,000 / Box
ARS5045H	ARS	1,000 / Box

**Notes:**

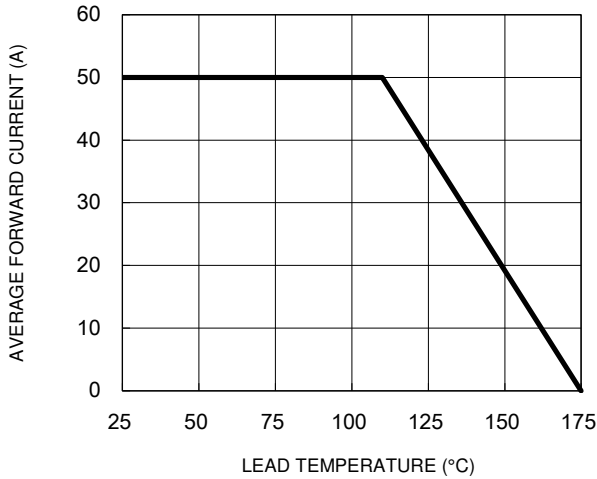
1. "H" means AEC-Q101 qualified

Not Recommended

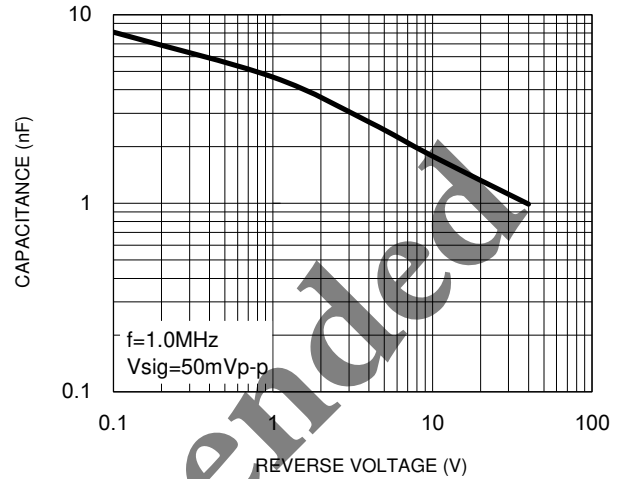
**CHARACTERISTICS CURVES**

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

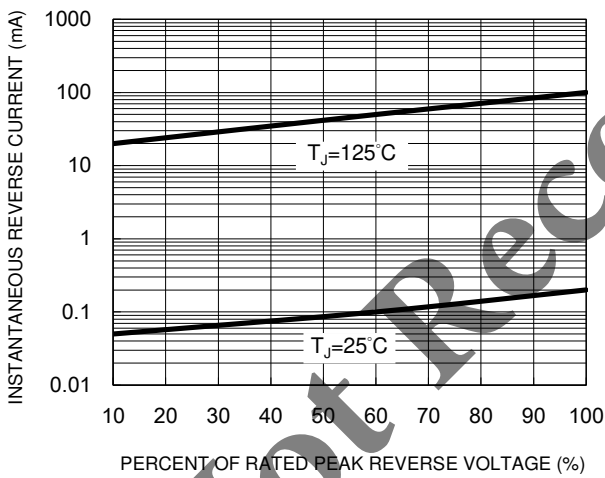
**Fig.1 Forward Current Derating Curve**



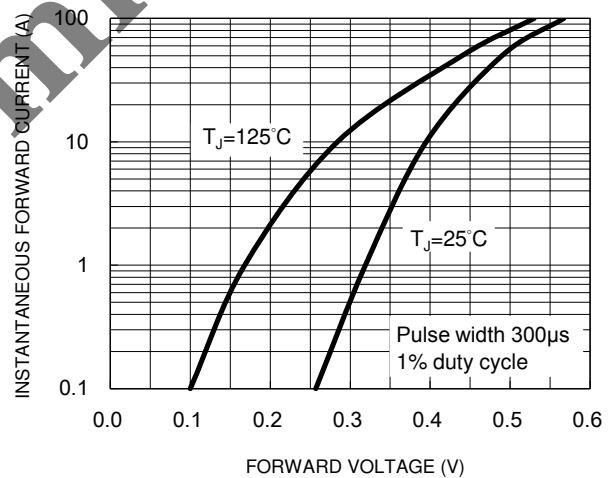
**Fig.2 Typical Junction Capacitance**



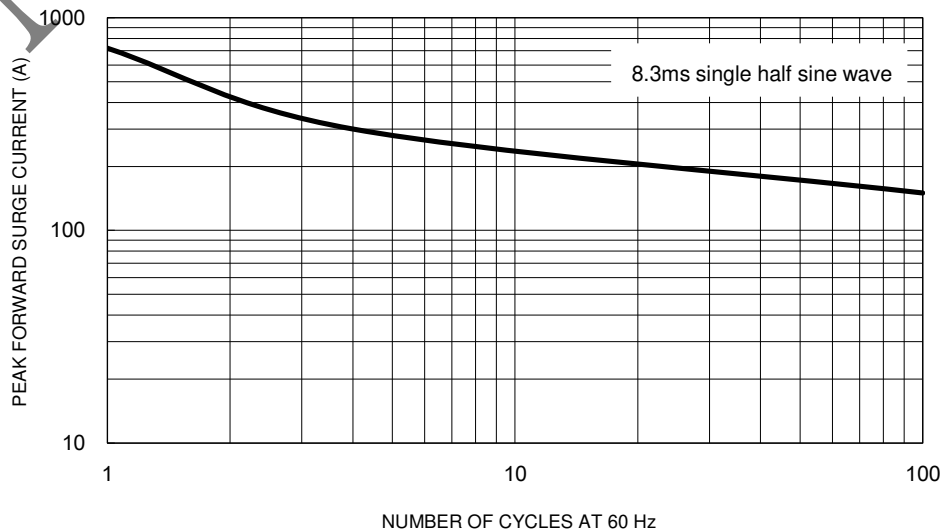
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**

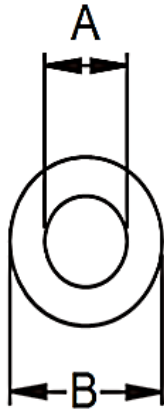


**Fig.5 Maximum Non-Repetitive Forward Surge Current**

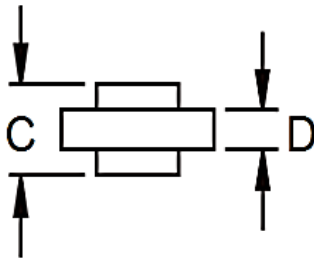


**PACKAGE OUTLINE DIMENSIONS**

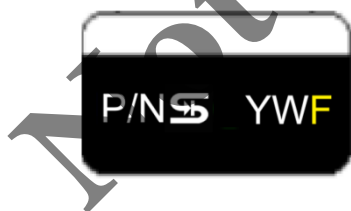
ARS



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	5.50	5.70	0.217	0.224
B	8.30	8.90	0.327	0.350
C	5.85	6.45	0.230	0.242
D	4.20	4.70	0.165	0.185



**MARKING DIAGRAM**



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

**Not Recommended**

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