

## 1A, 50V - 1000V High Efficient Rectifier

### FEATURES

- AEC-Q101 qualified available
- Glass passivated chip junction
- High current capability, Low  $V_F$
- High reliability
- High surge current capability
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- DC to DC converter
- Switching mode converters and inverters
- Freewheeling application

### MECHANICAL DATA

- Case: DO-204AL (DO-41)
- 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: 0.330g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	1	A
$V_{RRM}$	50 - 1000	V
$I_{FSM}$	30	A
$T_{J\ MAX}$	150	°C
Package	DO-204AL (DO-41)	
Configuration	Single die	



DO-204AL (DO-41)



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	HER 101G	HER 102G	HER 103G	HER 104G	HER 105G	HER 106G	HER 107G	HER 108G	UNIT
Marking code on the device		HER 101G	HER 102G	HER 103G	HER 104G	HER 105G	HER 106G	HER 107G	HER 108G	
Repetitive peak reverse voltage	$V_{RRM}$	50	100	200	300	400	600	800	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	140	210	280	420	560	700	V
Forward current	$I_F$	1								A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	$I_{FSM}$	30								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-ambient thermal resistance	$R_{\theta JA}$	60	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	15	°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>	HER101G HER102G HER103G HER104G	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	1.0	V
	HER105G			-	1.3	V
	HER106G HER107G HER108G			-	1.7	V
Reverse current @ rated $V_R$ <sup>(2)</sup>		$T_J = 25^\circ\text{C}$	$I_R$	-	5	$\mu\text{A}$
		$T_J = 125^\circ\text{C}$		-	150	$\mu\text{A}$
Junction capacitance	HER101G HER102G HER103G HER104G HER105G	1MHz, $V_R = 4.0\text{V}$	$C_J$	15	-	pF
	HER106G HER107G HER108G			10	-	pF
Reverse recovery time	HER101G HER102G HER103G HER104G HER105G	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$	$t_{rr}$	-	50	ns
	HER106G HER107G HER108G			-	75	ns

**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>
HER1xG	DO-204AL (DO-41)	5,000 / Tape & Reel
HER1xG A0G	DO-204AL (DO-41)	3,000 / Ammo box
HER1xGH	DO-204AL (DO-41)	5,000 / Tape & Reel
HER1xGHA0G	DO-204AL (DO-41)	3,000 / Ammo box

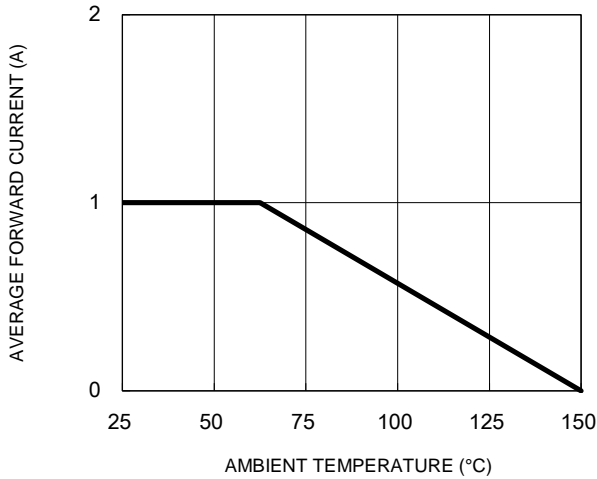
**Notes:**

1. "x" defines voltage from 50V (HER101G) to 1000V (HER108G)
2. "H" means AEC-Q101 qualified

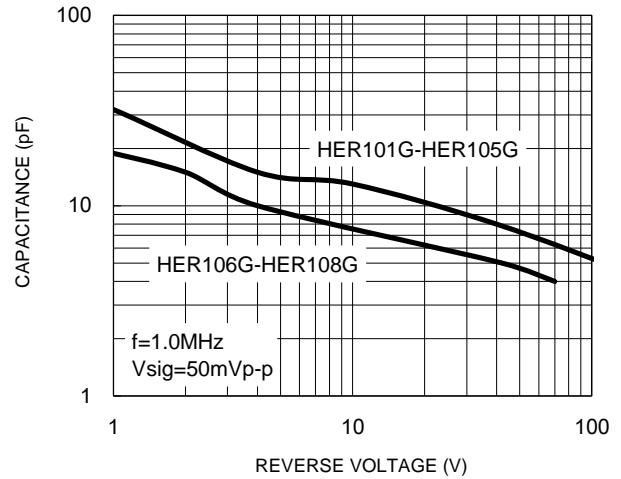
**CHARACTERISTICS CURVES**

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

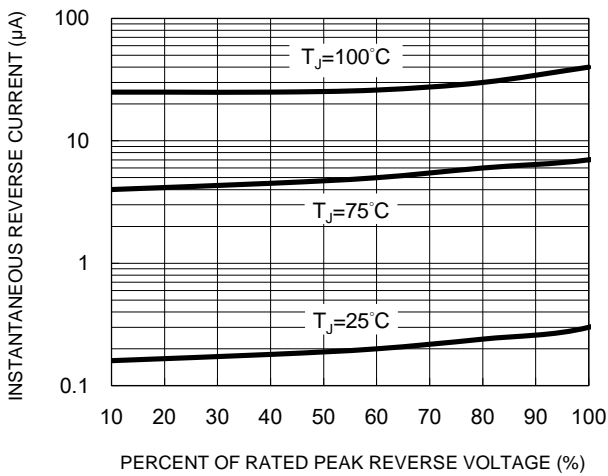
**Fig.1 Forward Current Derating Curve**



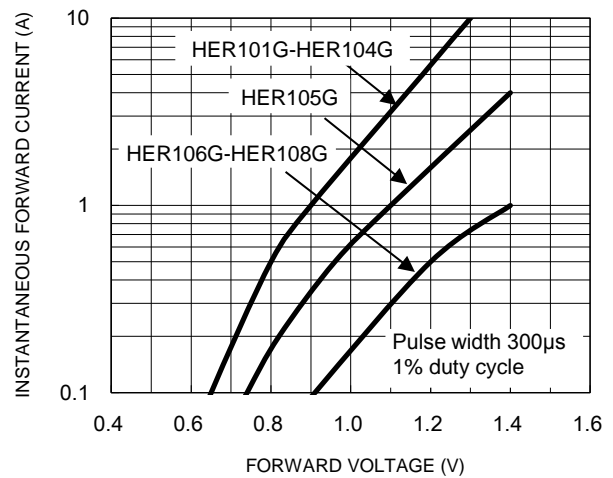
**Fig.2 Typical Junction Capacitance**



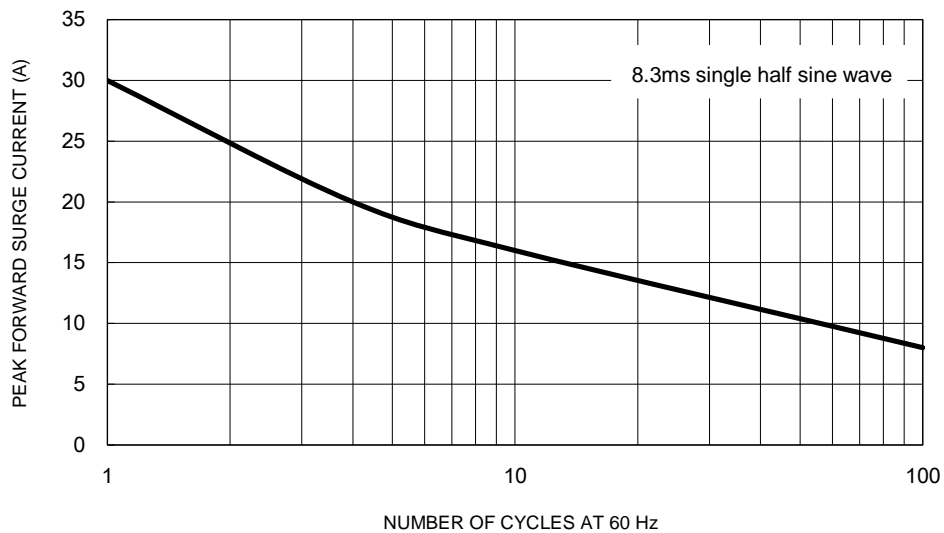
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



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



**CHARACTERISTICS CURVES**

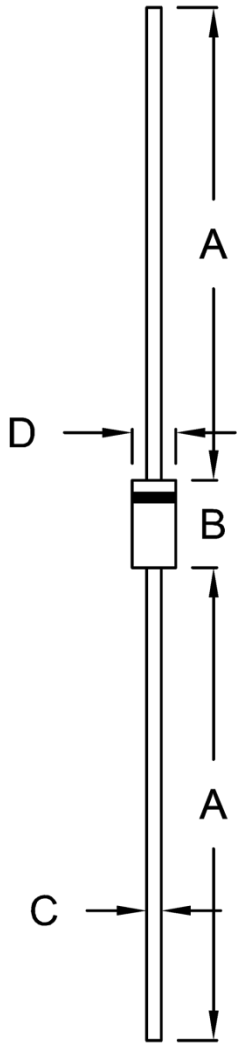
(T<sub>A</sub> = 25°C unless otherwise noted)

**Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram**



**PACKAGE OUTLINE DIMENSIONS**

DO-204AL (DO-41)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	25.40	-	1.000	-
B	4.20	5.20	0.165	0.205
C	0.71	0.86	0.028	0.034
D	2.00	2.70	0.079	0.106

**MARKING DIAGRAM**



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

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