



# HA11 THRU HA18

## 1.0 AMP. HIGH EFFICIENCY RECTIFIERS

**FEATURES**

- \* Low forward voltage drop
- \* High current capability
- \* High reliability
- \* High surge current capability

**MECHANICAL DATA**

- \* Case: Molded plastic
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Lead: Axial leads, solderable per MIL-STD-202, method 208 guaranteed
- \* Polarity: Color band denotes cathode end
- \* Mounting Position: Any
- \* Weight: 0.20 grams

**VOLTAGE RANGE**  
50 to 1000 Volts  
**CURRENT**  
1.0 Ampere

**R-1**

Dimensions in inches and (millimeters)

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

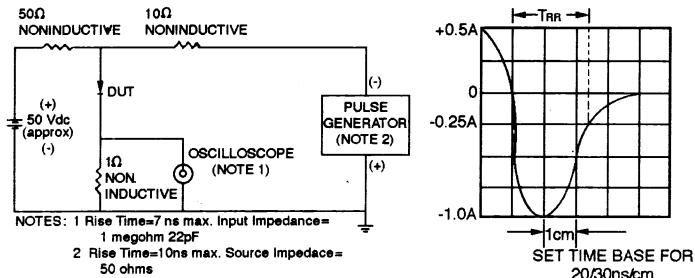
Rating at 25°C ambient temperature unless otherwise specified.  
Single phase, half wave, 60 Hz, resistive or inductive load.  
For capacitive load, derate current by 20%

TYPE NUMBER	SYMBOLS	HA11	HA12	HA13	HA14	HA15	HA16	HA17	HA18	UNITS	
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	50	100	200	300	400	600	800	1000	V	
Maximum RMS Voltage	$V_{RMS}$	35	70	140	210	280	420	560	700	V	
Maximum D.C Blocking Voltage	$V_{DC}$	50	100	200	300	400	600	800	1000	V	
Maximum Average Forward Rectified Current .375" (9.5mm) lead length @ $T_A = 40^\circ C$	$I_{F(AV)}$	1.0								A	
Peak Forward Surge Current, 8.3 ms single half sine-wave superimposed on rated load (JEDEC method)	$I_{FSM}$	25								A	
Maximum Instantaneous Forward Voltage at 1.0A	$V_F$	1.0			1.3		1.7			V	
Maximum D.C Reverse Current @ $T_A = 25^\circ C$ at Rated D.C Blocking Voltage @ $T_A = 100^\circ C$	$I_R$					5.0					$\mu A$ $\mu A$
Maximum Reverse Recovery Time (Note 1)	$T_{RR}$	50				75				nS	
Typical Junction Capacitance (Note 2)	$C_J$	20				15				pF	
Operating Temperature Range	$T_J$	- 65 to + 125								$^\circ C$	
Storage Temperature Range	$T_{STG}$	- 65 to + 150								$^\circ C$	

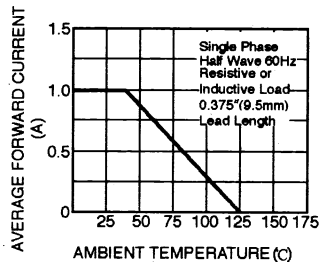
NOTES: 1. Reverse Recovery Test Conditions:  $I_F = 0.5A$ ,  $I_R = 1.0A$ ,  $I_{RR} = 0.25A$ .  
2. Measured at 1 MHz and applied reverse voltage of 4.0V D.C.

## RATINGS AND CHARACTERISTIC CURVES (HA11 THRU HA18)

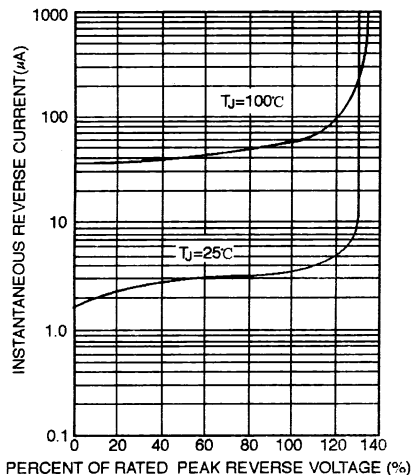
**FIG. 1 – TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS**



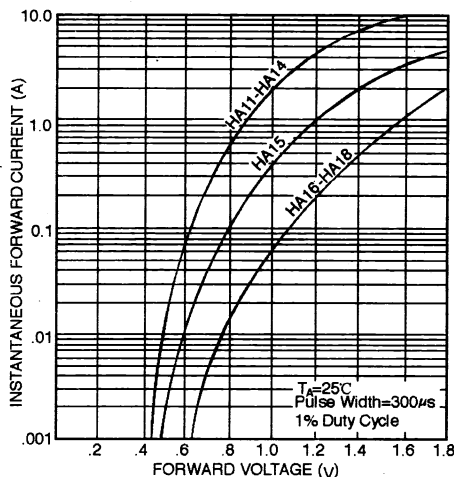
**FIG. 2 – TYPICAL FORWARD CURRENT DERATING CURVE**



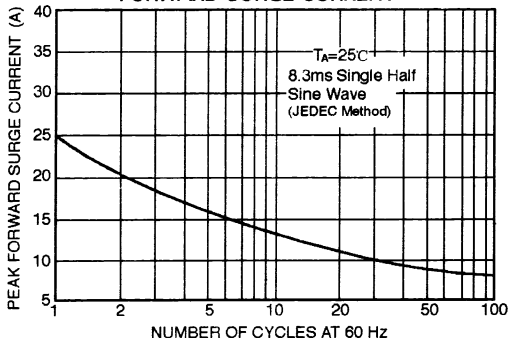
**FIG. 3 – TYPICAL REVERSE CHARACTERISTICS**



**FIG. 4 – TYPICAL FORWARD CHARACTERISTICS**



**FIG. 5 – MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT**



**FIG. 6 – TYPICAL JUNCTION CAPACITANCE**

