

A114 Series

December 1993

1A, 50V - 600V Diodes

Features

- Glass Passivated Junction
- Fast Recovery Times
- · Low Forward Voltage Drop, High-Current Capability
- Low Reverse Current Leakage
- High Surge Current Capability

Description

The Harris A114A, A114B, A114C, A114D, A114E, A114F, and A114M are fast-recovery silicon rectifiers ($t_{\rm RR}$ = 200ns max.) featuring low forward voltage drop, high-current capability. They use glass passivated epitaxial construction.

These rectifiers are intended for TV deflection, inverter, high-frequency power supplies, energy recovery, and output rectification.

These types are supplied in unitized-glass hermeticallysealed JEDEC Style DO-204 package.



JEDEC STYLE DO-204 TOP VIEW



Symbol



Absolute Maximum Ratings For Single Ph	hase, 60Hz, Half-Wave Resistive or Inductive Loads (Note 1)									
	A114F	A114A	A114B	A114C	A114D	A114E	A114M	UNITS		
Maximum Peak (Repetitive)										
Reverse VoltageVRRM	50	100	200	300	400	500	600	٧		
Maximum RMS Input										
(Supply) Voltage V _{RMS}	35	70	140	210	280	350	420	٧		
Maximum DC Reverse										
(Blocking) Voltage V _{R(DC)}	50	100	200	300	400	500	600	٧		
Maximum Average Forward Output Current Lead Length = 0.375in. (9.5mm);										
$T_A = -55^{\circ}CI_O$	1	1	1	1	1	1	1	Α		
Maximum Peak Surge (Non-Repetitive)										
Forward Current:										
For 8.3ms Half Sine Wave,										
Superimposed on Rated Load IFSM	30	30	30	30	30	30	30	Α		
Operating Junction and										
Storage Temperature				-65 to +175	;			°C		
NOTE:										

^{1.} For capacitive load derate current by 20%.

Specifications A114 Series

Electrical Specifications T_A = +25°C, Unless Otherwise Specified

		LIMITS FOR ALL TYPES			
PARAMETERS	SYMBOL	MIN	TYP	MAX	UNITS
Maximum Instantaneous Forward-Voltage Drop					
At 1A	V _F	-	-	1.3	v
Maximum Full-Load Reverse Current					
At Average Full-Cycle, Lead Length = 0.375 in. (9.5mm) $T_A = +25^{\circ}\text{C}$	l _H	•	•	1	μА
At Average Full-Cycle, Lead Length = 0.375 in. (9.5mm) $T_A = +150^{\circ}C$	I _R	-	-	100	μА
Maximum DC Reverse Current at Maximum DC Reverse (Blocking) Voltage	IR	-		2	μА
Maximum Reverse Recovery Time					
At $I_F = 0.5A$, $I_R = 1A$, $I_{RR} = 0.25A$	t _{RR}	-	-	150 (Note 1)	με
Typical Junction Capacitance At Frequency = 1MHz and Applied Reverse Voltage = 4V	C¹	-	10	-	pF

NOTE:

1. 200ns for A115M

Typical Performance Curves

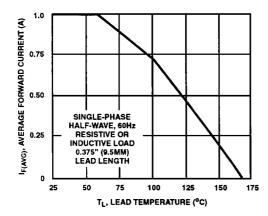


FIGURE 1. MAXIMUM AVERAGE FORWARD OUTPUT CURRENT CHARACTERISTIC

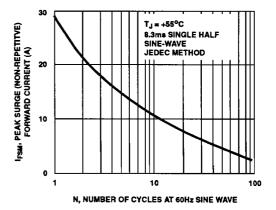


FIGURE 2. MAXIMUM PEAK SURGE (NON-REPETITIVE)
FORWARD CURRENT CHARACTERISTIC

Typical Performance Curves (Continued)

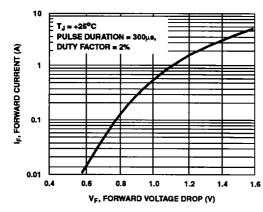


FIGURE 3. TYPICAL INSTANTANEOUS FORWARD CURRENT CHARACTERISTIC

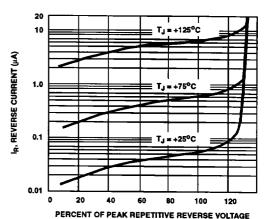


FIGURE 4. TYPICAL REVERSE LEAKAGE CURRENT CHARACTERISTICS

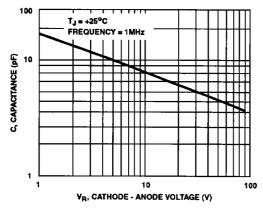


FIGURE 5. TYPICAL JUNCTION CAPACITANCE CHARACTERISTIC

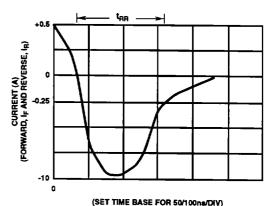
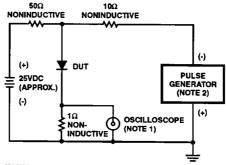


FIGURE 6. REVERSE-RECOVERY TIME WAVEFORM



NOTES:

- 1. RISE TIME = 7ns MAX., INPUT IMPEDANCE = 1MQ, 22pF
- 2. RISE TIME = 10ns MAX., SOURCE IMPEDANCE = 50Ω

FIGURE 7. REVERSE-RECOVERY TIME TEST CIRCUIT