

December 1993

1A, 50V - 1000V Diodes

Features

- High-Temperature Metallurgically Bonded, No Compression Contacts as Found in Diode-Constructed Rectifiers
- Glass-Passivated Junction
- 1A Operation at $T_A = 100^\circ\text{C}$ with No Thermal Runaway
- Typical Reverse Current Less than 0.5 μA
- Exceeds Environmental Standard of MIL-STD-19500
- Hermetically Sealed Package
- High-Temperature Soldering Guaranteed: 350 $^\circ\text{C}/10\text{s}/0.375$ in. (9.5 mm) Lead Length

Description

The Harris A14A, A14C, A14E, A14P are glass-passivated "transient voltage protected", silicon rectifiers intended for general-purpose applications.

These rectifiers will dissipate up to 1000 watts in reverse direction without damage. Voltage transients generated by household or industrial power lines are dissipated.

These rectifiers are supplied in a JEDEC style DO-204 package.

Package

 JEDEC STYLE DO-204
 TOP VIEW


Symbol



Absolute Maximum Ratings

 For Single Phase, 60Hz, Half-Wave Resistive or Inductive Loads (Note 1)

	A14F	A14A	A14C	A14E	A14P	UNITS
Maximum Peak (Repetitive) Reverse Voltage V_{RRM}	50	100	300	500	1000	V
Maximum RMS Input (Supply) Voltage For Resistive or Inductive Loads. V_{RMS}	35	70	210	350	700	V
Maximum DC Reverse (Blocking) Voltage $V_{R(DC)}$	50	100	300	500	1000	V
Maximum Average Forward Output Current For Resistive or Inductive Loads; $T_A = 100^\circ\text{C}$ I_O	1	1	1	1	1	A
Maximum Peak Surge (Non-Repetitive) Forward Current: For 8.3ms Half Sine Wave, Superimposed on Rated Load I_{FSM}	50	50	50	50	50	A
Operating Junction and Storage Temperature T_J, T_{STG}	-65 to +175	-65 to +175	-65 to +175	-65 to +175	-65 to +175	$^\circ\text{C}$

NOTE:

1. For capacitive load derate current by 20%.

Specifications A14A, A14C, A14E, A14F, A14P

Electrical Specifications $T_A = +25^\circ\text{C}$, Unless Otherwise Specified

PARAMETERS	SYMBOL	LIMITS FOR ALL TYPES			UNITS
		MIN	TYP	MAX	
Maximum Instantaneous Forward-Voltage Drop At 1A	V_F	-	-	1.2 (Note 1)	V
Maximum Full-Load Reverse Current At Average Full-Cycle, Lead Length = 0.375 in. (9.5mm) $T_A = 100^\circ\text{C}$	I_R	-	-	200	μA
Maximum Reverse Current At Maximum DC Reverse (Blocking) Voltage	I_R	-	-	2	μA
Maximum Reverse Recovery Time At $I_F = 0.5\text{A}$, $I_R = 1\text{A}$, $t_{RR} = 0.25\text{A}$	t_{RR}	-	-	2	μs
Typical Junction Capacitance At Frequency = 1MHz and Applied Reverse Voltage = 4V	C_J	-	15	-	pF

NOTE:

- 1.1V for A14C, A14E, and A14P

Typical Performance Curves

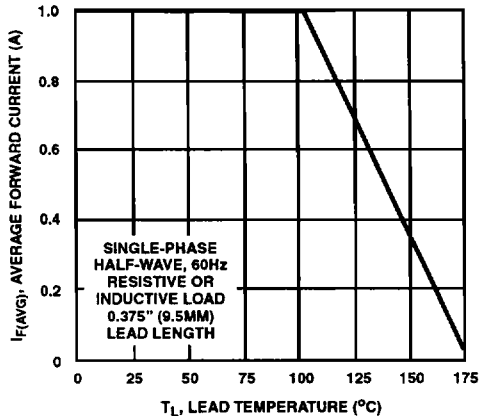


FIGURE 1. MAXIMUM AVERAGE FORWARD OUTPUT CURRENT CHARACTERISTIC

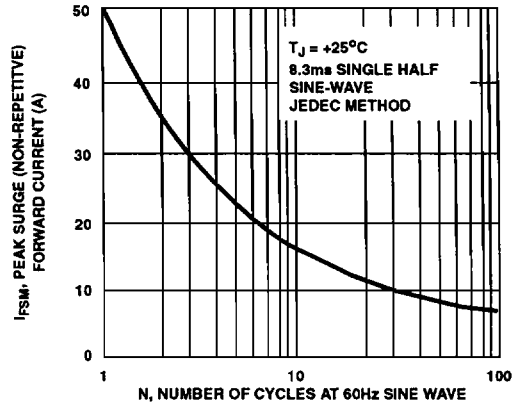


FIGURE 2. MAXIMUM PEAK SURGE NON-REPETITIVE FORWARD CURRENT CHARACTERISTIC

4

GENERAL
PURPOSE DIODES

Typical Performance Curves (Continued)

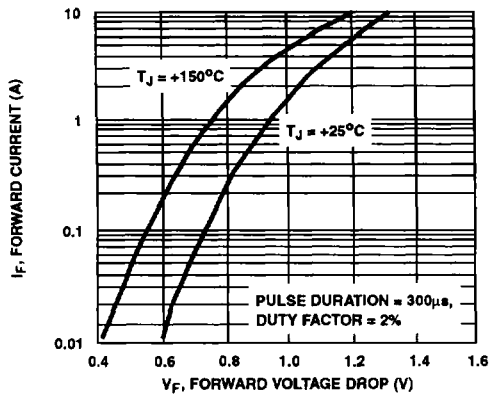


FIGURE 3. TYPICAL INSTANTANEOUS FORWARD CURRENT CHARACTERISTIC

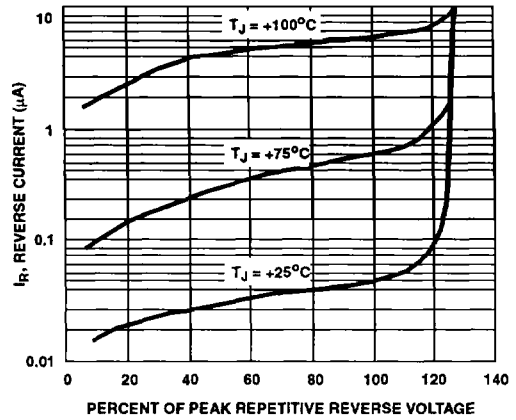


FIGURE 4. TYPICAL REVERSE LEAKAGE CURRENT CHARACTERISTICS

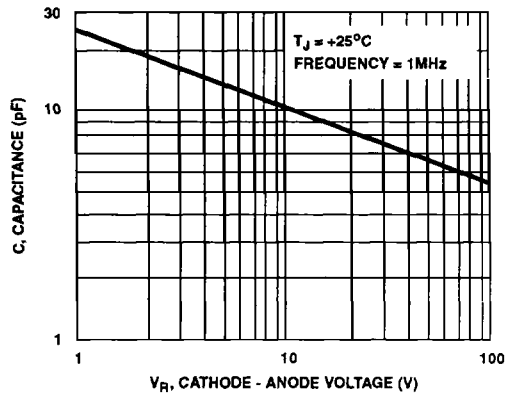


FIGURE 5. TYPICAL JUNCTION CAPACITANCE CHARACTERISTIC