HARRIS SEMICONDUCTOR

A14A, A14C, A14E A14F, A14P

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°C with No Thermal Runaway**
- **Typical Reverse Current Less than 0. 5μA**
- **Exceeds Environmental Standard of MIL-STD-19500**
- **Hermetically Sealed Package**
- **High-Temperature Soldering Guaranteed: 350°C/10s/ 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°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	°C

NOTE:

1. For capactive load derate current by 20%.

File Number 2178.1

Electrical Specifications T_A = +25°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°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 = 0.5A, I_R = 1A, I_{RR} = 0.25A	t_{RR}	-	-	2	µs
Typical Junction Capacitance At Frequency = 1MHz and Applied Reverse Voltage = 4V	C_J	-	15	-	pF

NOTE:

1. 1.1V for A14C, A14E, and A14P

Typical Performance Curves

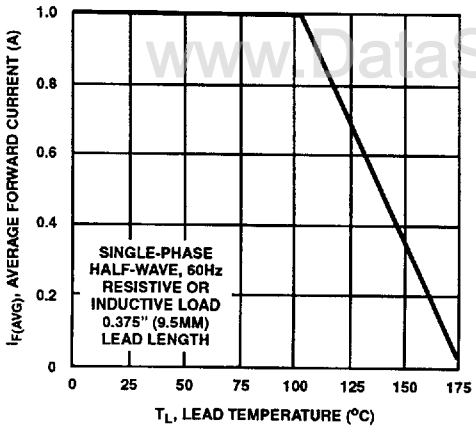

FIGURE 1. MAXIMUM AVERAGE FORWARD OUTPUT CURRENT CHARACTERISTIC

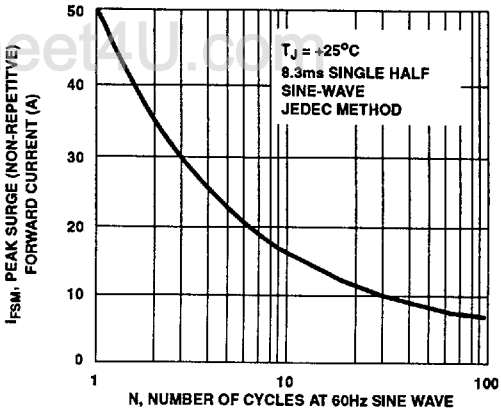

FIGURE 2. MAXIMUM PEAK SURGE NON-REPETITIVE FORWARD CURRENT CHARACTERISTIC

Typical Performance Curves (Continued)

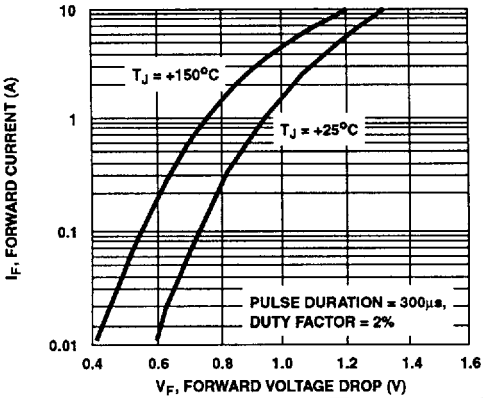

FIGURE 3. TYPICAL INSTANTANEOUS FORWARD CURRENT CHARACTERISTIC

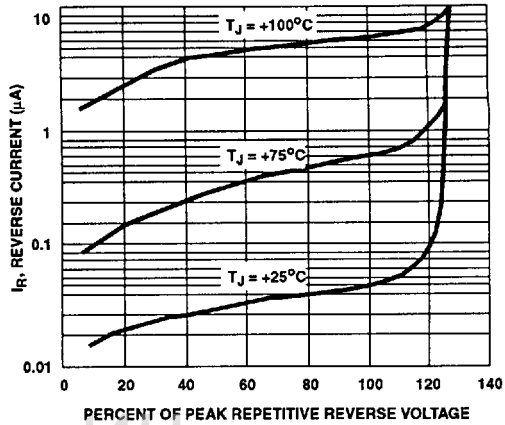

FIGURE 4. TYPICAL REVERSE LEAKAGE CURRENT CHARACTERISTICS

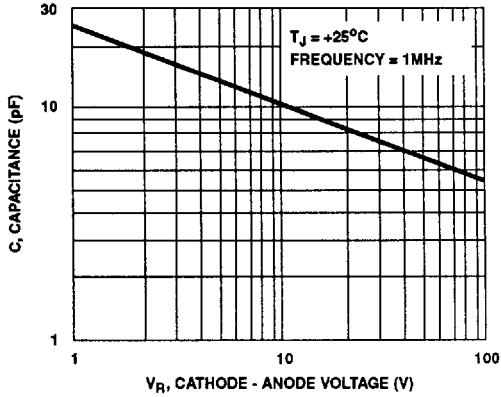

FIGURE 5. TYPICAL JUNCTION CAPACITANCE CHARACTERISTIC