

December 1993

3A, 50V - 100V Diodes

Features

- High-Temperature Metallurgically Bonded, No Compression Contacts as Found in Diode-Constructed Rectifiers
- Glass-Passivated Junction
- 3A Operation at $T_A = 70^\circ\text{C}$ with No Thermal Runaway
- Low Reverse Current
- Exceeds Environmental Standard of MIL-STD-19500
- Hermetically Sealed Package
- High-Temperature Soldering: $350^\circ\text{C}/10\text{s}/0.375$ in. (9.5 mm) Lead Length

Description

The A15A and A15F are glass-passivated "transient voltage protected", silicon rectifiers intended for general-purpose applications.

These rectifiers will dissipate up to 100 watts in reverse direction without damage. Voltage transients generated by household or industrial power lines are dissipated.

These rectifiers are supplied in a AL-3 package.

Package

 AL-3
 TOP VIEW


Symbol



Absolute Maximum Ratings

Supply Frequency of 60Hz, Resistive or Inductive Loads (Note 1)

	A15F	A15A	UNITS
Maximum Peak (Repetitive) Reverse Voltage V_{RRM}	50	100	V
Maximum RMS Input (Supply) Voltage V_{RMS}	35	70	V
Maximum DC Reverse (Blocking) Voltage $V_{R(DC)}$	50	100	V
Maximum Average Forward Output Current Lead Length = 0.375 in. (9.5mm); $T_A = 70^\circ\text{C}$ I_O	3	3	A
Maximum Peak Surge (Non-Repetitive) Forward Current For 8.3ms Half Sine Wave, Superimposed on Rated Load, I_{FSM}	125	125	A
Operating Junction and Storage Temperature T_J, T_{STG}	-65 to +175	-65 to +175	$^\circ\text{C}$

NOTE:

1. For capacitive load derate current by 20%.

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 GENERAL
 PURPOSE DIODES

Specifications A15A, A15F

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 3A	V_F	-	-	1.2	V
Maximum Full-Load Reverse Current At Average Full-Cycle, Lead Length = 0.375 in. (9.5mm), $T_A = 70^\circ\text{C}$	I_R	-	-	200	μA
Maximum Reverse Current At Maximum DC Reverse (blocking) Voltage	I_R	-	-	5	μA
Maximum Reverse Recovery Time At $I_F = 0.5\text{A}$, $I_R = 1\text{A}$, $I_{RR} = 0.25\text{A}$	t_{RR}	-	-	3	μs
Typical Junction Capacitance At Frequency = 1MHz and Applied Reverse Voltage = 4V	C_J	-	40	-	pF

Typical Performance Curves

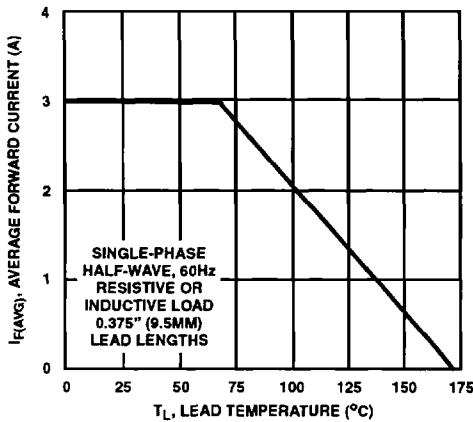


FIGURE 1. MAXIMUM AVERAGE FORWARD OUTPUT CURRENT CHARACTERISTIC

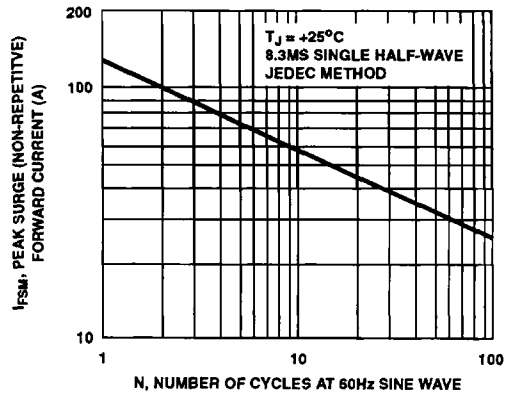


FIGURE 2. MAXIMUM PEAK SURGE (NON-REPETITIVE) FORWARD CURRENT CHARACTERISTIC

Typical Performance Curves (Continued)

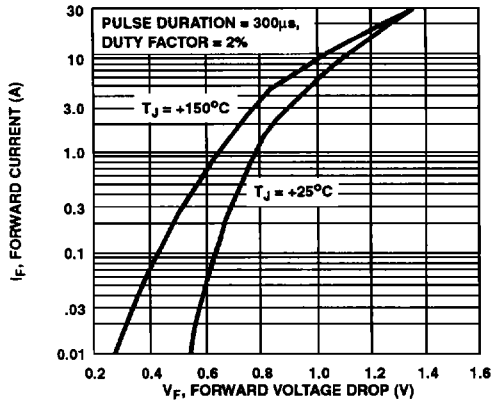


FIGURE 3. TYPICAL INSTANTANEOUS FORWARD CURRENT CHARACTERISTIC

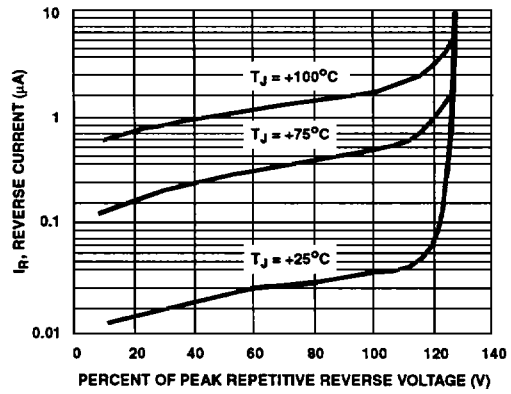


FIGURE 4. TYPICAL REVERSE LEAKAGE CURRENT CHARACTERISTICS

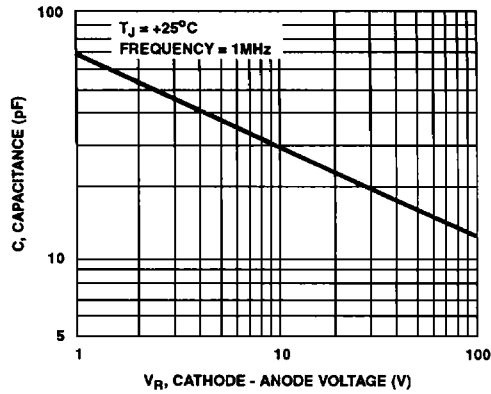


FIGURE 5. TYPICAL JUNCTION CAPACITANCE CHARACTERISTIC