HARRIS SEMICONDUCTOR

DB1 Series

1A, 50V - 1000V Single-Phase Full-Wave Bridge Rectifiers

December 1993

Features

- **Glass-Passivated Construction**
- **Surge Ratings: 50A**
- **Designed for PC Board Mounting**
- **UL Recognized Package Material**
- **Exceeds Environmental Standard of MIL-STD-19500**

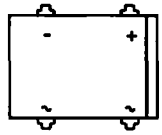
Description

The DB1 Series are full-wave bridge silicon rectifiers intended for low power rectification.

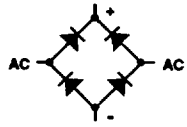
These bridge rectifiers are supplied in BR-4 compact plastic package.

Package

BR-4
TOP VIEW



Symbol



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

	DB1F	DB1A	DB1B	DB1D	DB1M	DB1N	DB1P	UNITS
Maximum Peak (Repetitive) Reverse Voltage ..... V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS Bridge Input (Supply) Voltage ..... V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC Reverse (Blocking) Voltage ..... $V_{R(DC)}$	50	100	200	400	600	800	1000	V
Maximum Average Forward Current For Resistive or Inductive Loads, T_A = 40°C ..... I_O	1	1	1	1	1	1	1	A
Maximum Peak Surge Forward Current For 8.3ms Half Sine Wave, Superimposed on Rated Load ..... I_{FSM}	50	50	50	50	50	50	50	A
Fusing Current (For Bridge Rectifier Protection) T_J = -55°C, t = 1 to 8.35ms ..... I^2t	10	10	10	10	10	10	10	A^2s
Operating Junction and Storage Temperature ..... T_J, T_{STG}				-55 to +150				°C

NOTE:

1. For capacitive load derate current by 20% or use conduction angle data (derating curve) Figure 5.

File Number **2097.1**

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

PARAMETERS	SYMBOL	LIMITS FOR ALL TYPES			UNITS
		MIN	TYP	MAX	
Maximum Instantaneous Forward-Voltage Drop (per Bridge Element) At 1A	V_F	-	-	1.1	V
Maximum Reverse Current					
At Maximum DC Reverse (Blocking) Voltage T_J = +25°C		-	-	10	µA
At Maximum DC Reverse (Blocking) Voltage T_J = +125°C	I_R	-	-	0.5	mA
Typical Junction Capacitance (per Bridge Element)					
Measured at 2MHz, Applied Reverse Voltage = 4V	C_J	-	25	-	pF
Typical Thermal Resistance					
Junction-to-Ambient, PC Board Mounted	$R_{\theta JA}$	-	80	-	°C/W

Typical Performance Curves

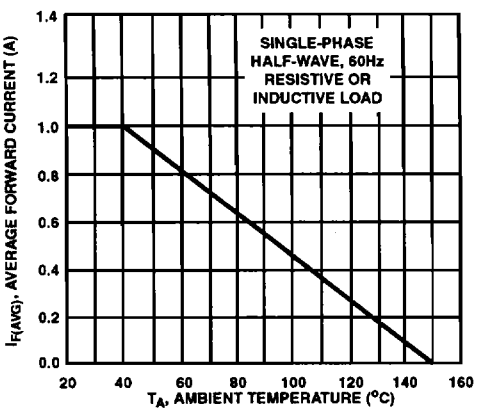


FIGURE 1. MAXIMUM AVERAGE FORWARD OUTPUT CURRENT CHARACTERISTIC

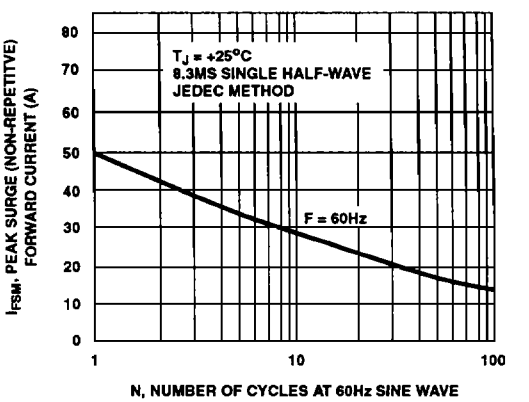


FIGURE 2. MAXIMUM PEAK SURGE (NON-REPETITIVE) FORWARD CURRENT CHARACTERISTIC

Typical Performance Curves (Continued)

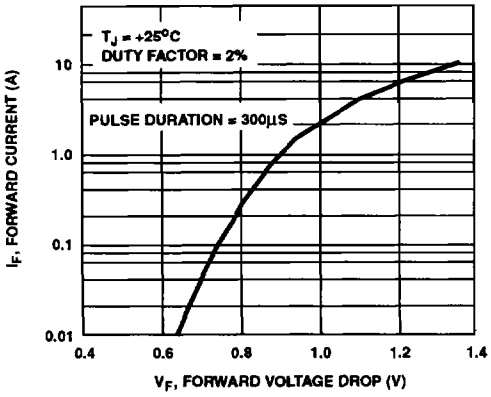


FIGURE 3. TYPICAL INSTANTANEOUS FORWARD CURRENT CHARACTERISTIC

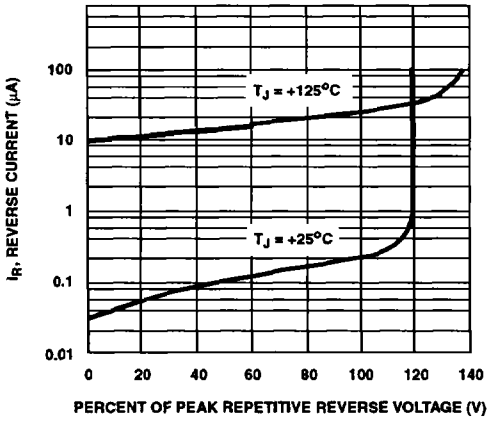


FIGURE 4. TYPICAL REVERSE LEAKAGE CURRENT CHARACTERISTICS

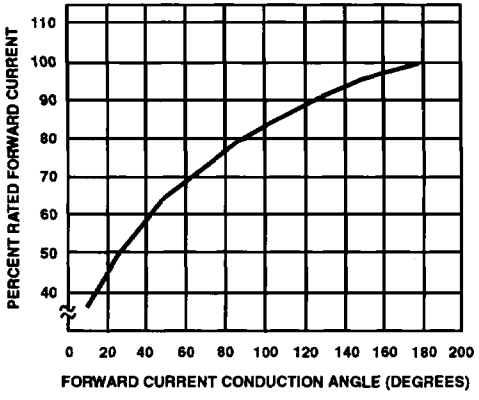


FIGURE 5. TYPICAL PERCENT OF AVERAGE FORWARD CURRENT CHARACTERISTIC (DERATING CURVE FOR SHORTENED CONDUCTION ANGLE)