

FAST RECOVERY RECTIFIER

VOLTAGE RANGE: 800 V

CURRENT: 3.0 A

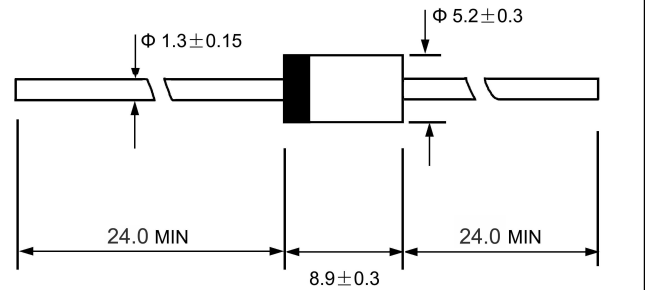
FEATURES

- ◇ Low cost
- ◇ Diffused junction
- ◇ Low leakage
- ◇ Low forward voltage drop
- ◇ High current capability
- ◇ Easily cleaned with Freon Alcohol, Isopropanol and similar solvents

MECHANICAL DATA

- ◇ Case: JEDEC DO-27, molded plastic
- ◇ Terminals: Axial lead, solderable per MIL-STD-202, Method 208
- ◇ Polarity: Color band denotes cathode
- ◇ Weight: 0.041 ounces, 1.15 grams
- ◇ Mounting position: Any

DO - 27



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 50Hz, resistive or inductive load. For capacitive load, derate by 20%.

		BYW178	UNITS
Maximum recurrent peak reverse voltage	V_{RRM}	800	V
Maximum RMS voltage	V_{RMS}	560	V
Maximum DC blocking voltage	V_{DC}	800	V
Maximum average forward rectified current 9.5mm lead length, @ $T_A = 75^\circ\text{C}$	$I_{F(AV)}$	3.0	A
Peak forward surge current 10ms single half-sine-wave superimposed on rated load @ $T_J = 125^\circ\text{C}$	I_{FSM}	80	A
Maximum instantaneous forward voltage @ 3.0 A	V_F	1.9	V
Maximum reverse current @ $T_A = 25^\circ\text{C}$ at rated DC blocking voltage @ $T_A = 100^\circ\text{C}$	I_R	1.0 20	μA
Maximum reverse recovery time (Note1)	t_{rr}	60	ns
Typical junction capacitance (Note2)	C_J	32	pF
Typical thermal resistance (Note3)	$R_{\theta JA}$	70	$^\circ\text{C/W}$
Operating junction temperature range	T_J	-55-----+150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55-----+150	$^\circ\text{C}$

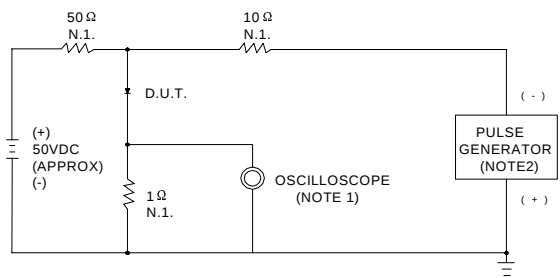
NOTE:1. Measured with $I_F = 0.5\text{A}$, $I_R = 1\text{A}$, $I_{rr} = 0.25\text{A}$.

2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

3. Thermal resistance from junction to ambient.

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FIG.1 – REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



NOTES: 1. RISE TIME = 7ns MAX. INPUT IMPEDANCE = 1MΩ, 22pF
2. RISE TIME = 10ns MAX. SOURCE IMPEDANCE = 50Ω

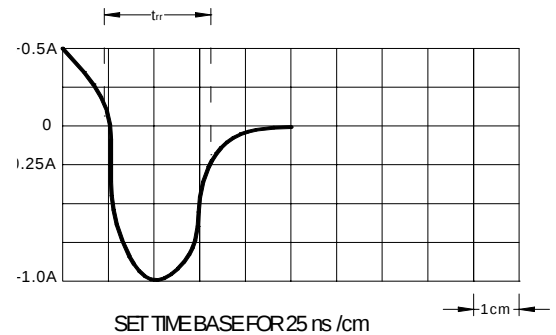
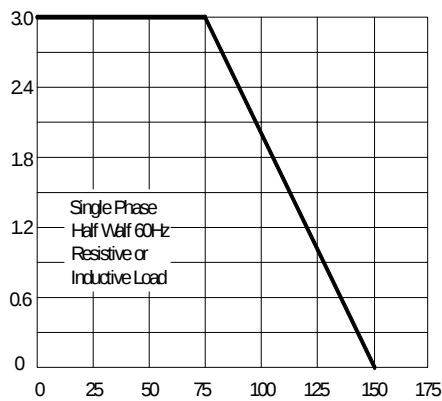


FIG.2 – FORWARD DERATING CURVE

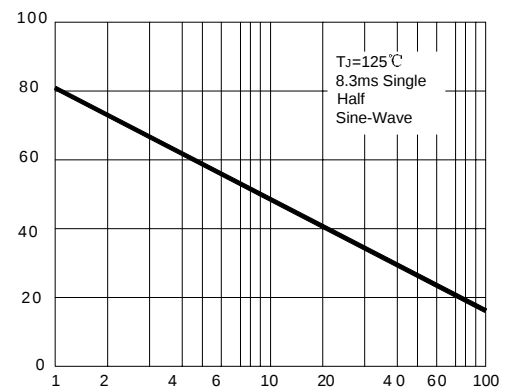
AVERAGE FORWARD RECTIFIED CURRENT
AMPERES



AMBIENT TEMPERATURE, °C

FIG.3 – PEAK FORWARD SURGE CURRENT

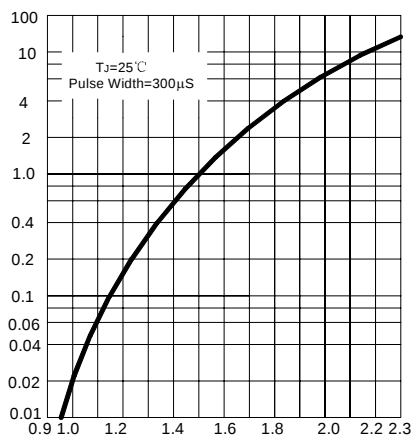
PEAK FORWARD SURGE CURRENT
AMPERES



NUMBER OF CYCLES AT 60 Hz

FIG.4 – TYPICAL FORWARD CHARACTERISTIC

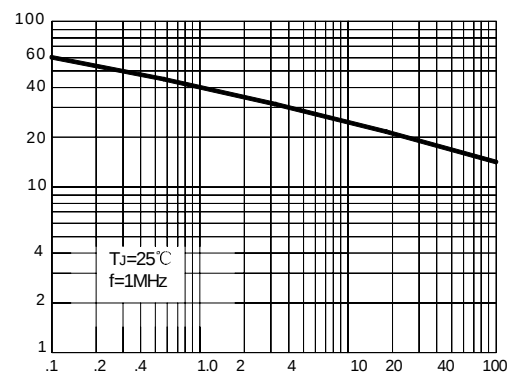
INSTANTANEOUS REVERSE CURRENT
AMPERES



INSTANTANEOUS FORWARD VOLTAGE, VOLTS

FIG.5 – TYPICAL JUNCTION CAPACITANCE

JUNCTION CAPACITANCE, pF



REVERSE VOLTAGE, VOLTS