

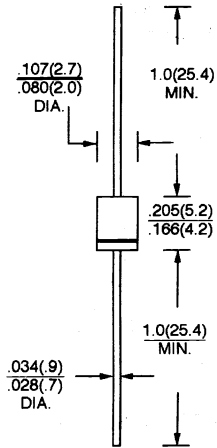


# BY127, BY133, EM513, EM516, EM520

**0.25 To 0.5 AMP. SILICON RECTIFIERS**

**VOLTAGE RANGE**  
1250 to 2000 Volts  
**CURRENT**  
0.5 Ampere

## DO-41



Dimensions in inches and (millimeters)

### FEATURES

- \* Low forward voltage drop
- \* High current capability
- \* High reliability
- \* High surge current capability

### MECHANICAL DATA

- \* Case: Molded plastic
- \* Epoxy: UL 94V - 0 rate flame retardant
- \* Lead: Axial leads, solderable per MIL - STD - 202, method 208 guaranteed
- \* Polarity: Color band denotes cathode end
- \* Mounting Position: Any
- \* Weight: 0.34 grams

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified.  
Single phase, half wave, 60 Hz, resistive or inductive load.  
For capacitive load, derate current by 20%

TYPE NUMBER	SYMBOLS	BY127	BY133	EM513	EM516	EM520	UNITS
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	1250	1400	1600	1800	2000	V
Maximum RMS Voltage	$V_{RMS}$	875	910	1120	1260	1400	V
Maximum D. C Blocking Voltage	$V_{DC}$	1250	1300	1600	1800	2000	V
Maximum Average Forward Rectified Current .375" (9.5mm) lead length @ $T_A = 50^\circ C$	$I_{F(AV)}$	0.5					A
Peak Forward Surge Current, 8.3 ms single half sine - wave superimposed on rated load (JEDEC method)	$I_{FSM}$	25					A
Maximum Instantaneous Forward Voltage at 1.0A	$V_F$	1.0		1.1			V
Maximum D. C Reverse Current @ $T_A = 25^\circ C$ At Rated D. C Blocking Voltage @ $T_A = 100^\circ C$	$I_R$	5.0 80.0			5.0 100		$\mu A$ $\mu A$
Typical Junction Capacitance (Note 1)	$C_J$	8			6		pF
Typical Thermal Resistance (Note 2)	$R_{\theta JA}$	80			110		$^\circ C/W$
Operation Temperature Range	$T_J$	- 65 to + 125					$^\circ C$
Storage Temperature Range	$T_{STG}$	- 65 to + 125					$^\circ C$

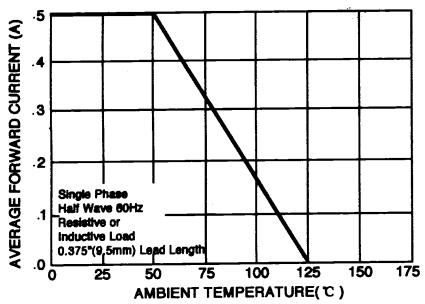
NOTE: (1) Measured at 1 MHz and applied reverse voltage of 4.0 V. D. C

(2) Thermal resistance from Junction to Ambient 0.375" (9.5mm) Lead Length, P. C. B mounted

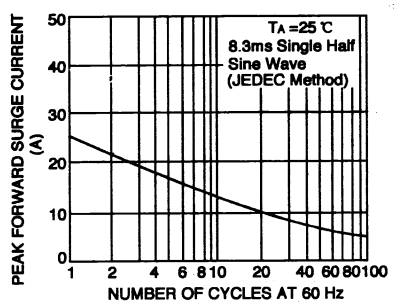
## RATINGS AND CHARACTERISTIC CURVES

BY127, BY133, EM153, EM516, EM520

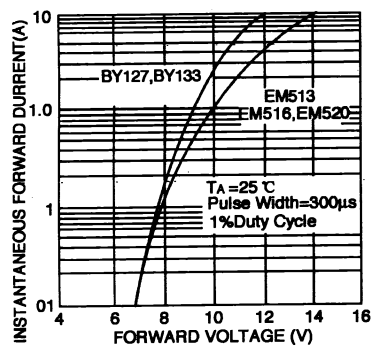
**FIG. 1 – TYPICAL FORWARD CURRENT DERATING CURVE**



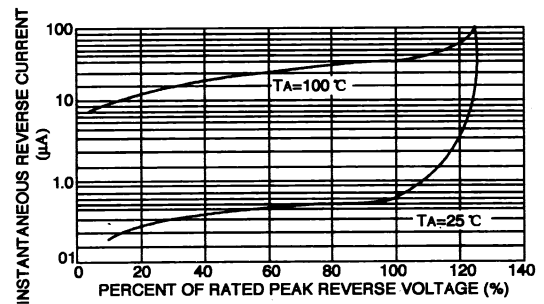
**FIG. 2 – MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT**



**FIG. 3 – TYPICAL FORWARD CHARACTERISTICS**



**FIG. 4 – TYPICAL REVERSE CHARACTERISTICS**



**FIG. 5 – TYPICAL JUNCTION CAPACITANCE**

