

# 1N5415 THRU 1N5420

FAST SWITCHING GLASS PASSIVATED SILICON RECTIFIER

**GENERAL  
INSTRUMENT**



### FEATURES

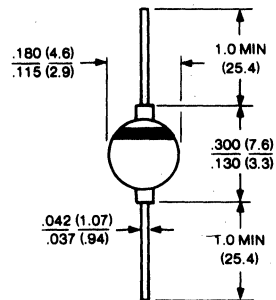
- Glass passivated junction
- High temperature metallurgically bonded — no compression contacts as found in many competitive devices
- Exceeds environmental standards of MIL-STD-19500
- Fast switching for high efficiency  
3.0 Ampere operation at  $T_A = 55^\circ\text{C}$  with no thermal runaway
- High temperature soldering guaranteed:  $350^\circ\text{C}/10$  seconds/.375", (9.5mm) lead length/5 lbs., (2.3kg) tension

### MECHANICAL DATA

Case: One piece glass hermetically sealed  
 Terminals: Axial leads, solderable per MIL-STD-202, Method 208  
 Polarity: Color band denotes cathode  
 Mounting Position: Any  
 Weight: .037 ounce, 1.04 grams

**VOLTAGE RANGE**  
50 to 600 Volts

**CURRENT**  
3.0 Amperes



**PATENTED**  
 Braze-lead assembly is covered by Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973

Dimensions in inches and (millimeters)

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at  $25^\circ\text{C}$  ambient temperature unless otherwise specified.  
 Single phase, half wave, 60Hz, resistive or inductive load.  
 For capacitive load, derate current by 20%.

	1N5415	1N5416	1N5417	1N5418	1N5419	1N5420	UNITS
* Maximum Recurrent Peak Reverse Voltage	50	100	200	400	500	600	V
Maximum RMS Voltage	35	70	140	280	350	420	V
* Maximum DC Blocking Voltage	50	70	200	400	500	600	V
* Minimum Reverse Breakdown Voltage at 50 $\mu\text{A}$	55	110	220	440	550	660	V
* Maximum Average Forward Rectified Current .375", (9.5mm) Lead Length at $T_A = 55^\circ\text{C}$	3.0						A
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC method)	80						A
Maximum Instantaneous Forward Voltage at 3.0A*	1.1						V
9.0A	1.5						
Maximum DC Reverse Current at Rated DC Blocking Voltage	1.0						$\mu\text{A}$
	20						$\mu\text{A}$
Maximum Junction Capacitance (Note 1)	550	430	250	165	140	120	pF
* Maximum Reverse Recovery Time (Note 2)	150	150	150	150	250	400	ns
Operating Temperature Range $T_J$	-65 to +175						$^\circ\text{C}$
* Storage Temperature Range $T_{STG}$	-65 to +175						$^\circ\text{C}$

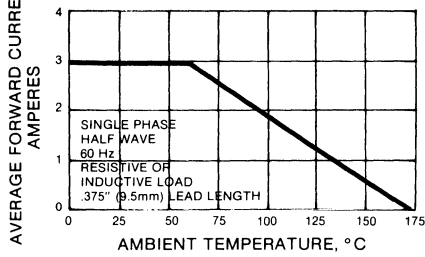
**NOTES:**

1. Measured at 1 MHz and applied reverse voltage of 4.0 volts.
2. Reverse Recovery Test Conditions:  $I_F = .5\text{A}$ ,  $I_R = 1\text{A}$ ,  $t_{rr} = .25\text{A}$ .

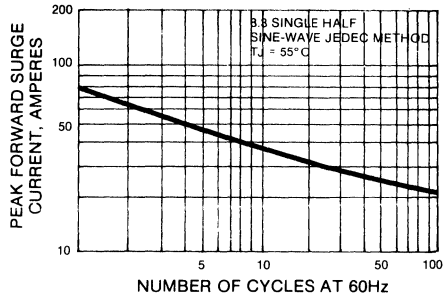
3. Available to JAN and JANTX Military Specifications MIL-S-19500/411.
- \* JEDEC Registered Values

**RATING AND CHARACTERISTIC CURVES**  
**1N5415 THRU 1N5420**

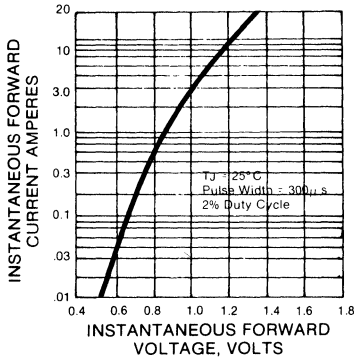
**FIG. 1 — FORWARD CURRENT DERATING CURVE**



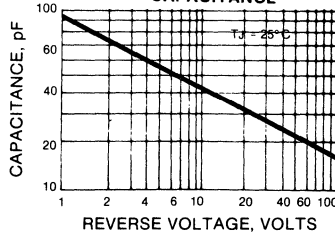
**FIG. 2 — MAXIMUM NON-REPETITIVE PEAK SURGE CURRENT**



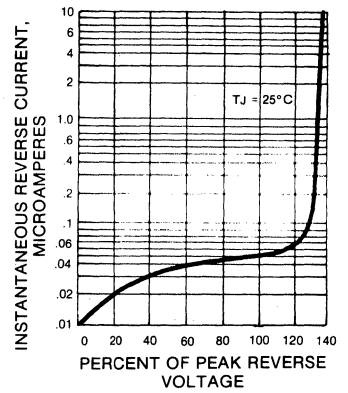
**FIG. 3 — TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS**



**FIG. 4 — TYPICAL JUNCTION CAPACITANCE**



**FIG. 5 — TYPICAL REVERSE CHARACTERISTICS**



**FIG. 6 — TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS**

