

# Silicon Rectifiers

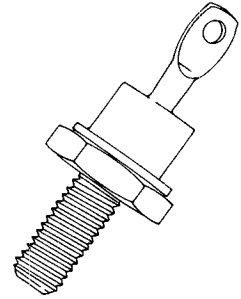
**IN1341A-48A**  
**IN1341RA-48RA**

## MEDIUM CURRENT 6A TYPE

These stud mounted diffused junction silicon rectifiers, (designed to meet MIL-E-1/1108) are recommended for all rectifier applications in the 2 to 8 ampere range. A high junction temperature rating and an extremely low forward voltage drop and thermal impedance permit high current operation with minimum space requirements. These rectifiers may be mounted directly to a chassis or a fin or may be electrically insulated from the heat sink by using the mica washer insulating kit

Versatility is further increased by the availability of a negative polarity unit (stud is anode), described by the suffix "R" appearing after the type number. The use of positive and negative polarity units facilitates the construction of bridge circuits and permits the use of either a positive or negative heat sink in half-wave and center-tap applications.

General Electric research, advanced development and product design have resulted in a highly efficient rectifying junction. This feature, plus a mechanical design employing high temperature hard solders and welds for all internal and external joints and seals, which eliminates common sources of thermal fatigue failure, have produced a silicon rectifier with outstanding reliability under all operating conditions.



### electrical ratings and specifications (60 cps, Resistive or Inductive Load)

	IN1341A IN1341RA	IN1342A IN1342RA	IN1343A IN1343RA	IN1344A IN1344RA	IN1345A IN1345RA	IN1346A IN1346RA	IN1347A IN1347RA	IN1348A IN1348RA
Max. Allow. Transient Peak Reverse Voltage (Non-recurrent, 5 millisecc. max. duration, $T_j = 0$ to $200^\circ\text{C}$ )	100	200	300	350	450	600	700	800 Volts
Max. Allow. Peak Reverse Voltage (Repetitive)*	50	100	150	200	300	400	500	600 Volts
Max. Allow. RMS Voltage	35	70	105	140	210	280	350	420 Volts
Max. Allow. DC Blocking Voltage**	50	100	150	200	300	400	500	600 Volts
Max. Allow. Forward Current (Single Phase $-150^\circ\text{C}$ stud temp.)	←———— 6 amperes —————→							
Max. Allow. Peak One Cycle Surge Current (non-recurrent)	←———— 150 amperes —————→							
$I^2t$ Rating (for $t$ greater than .0008 sec. and less than .0083 sec. (non-recurrent))	← 25 ampere <sup>2</sup> sec. — min. rating ( $T_j = -65^\circ\text{C}$ to $+200^\circ\text{C}$ ) —→							
Max. Full Load Voltage Drop (Single Phase, Full Cycle Average $-150^\circ\text{C}$ stud temp.)	←———— .64 Volts —————→							
Max. Leakage Current at Full Load (Single Phase, Full Cycle Average $-150^\circ\text{C}$ stud temp.)	3.0	2.5	2.25	2.0	1.75	1.5	1.25	1.0 ma
Max. Thermal Resistance (junction to stud)	←———— 4.25°C/Watt —————→							
Junction Operating and Storage Temp. Range	←———— $-65^\circ\text{C}$ to $+200^\circ\text{C}$ —————→							
Stud Torque	Minimum 12 in.-lbs.; Maximum 15 in.-lbs.							

\*Maximum voltages apply with a heat sink thermal resistance of  $22^\circ\text{C}/\text{Watt}$  or less at maximum rated junction temperature.  
 \*\*Maximum voltages apply with a heat sink thermal resistance of  $7^\circ\text{C}/\text{Watt}$  or less at maximum rated junction temperature.

1N1341A-48A  
1N1341RA-48RA

OUTLINE DRAWING

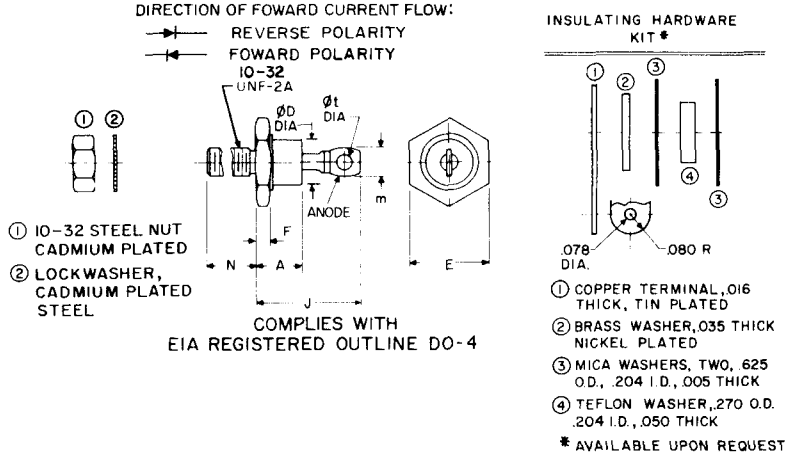
INSULATING  
HARDWARE  
KIT\*

DIRECTION OF EASY CONVENTIONAL  
CURRENT FLOW - IN1199A - IN1206A

DIRECTION OF EASY CONVENTIONAL  
CURRENT FLOW - IN1199RA - IN1206RA

OUTLINE DRAWING

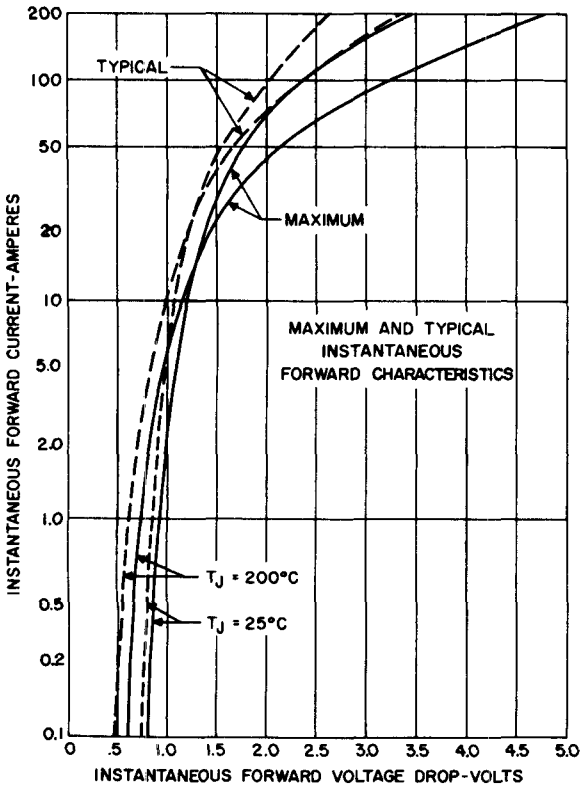
SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A		.405		10.29	
$\phi D$		.424		10.77	
E	.424	.437	10.77	11.10	
F	.075	.175	1.91	4.45	
J		.800		20.32	
m		.250		6.35	1
N	.422	.453	10.72	11.51	
$\phi t$	.060		1.52		
W					2



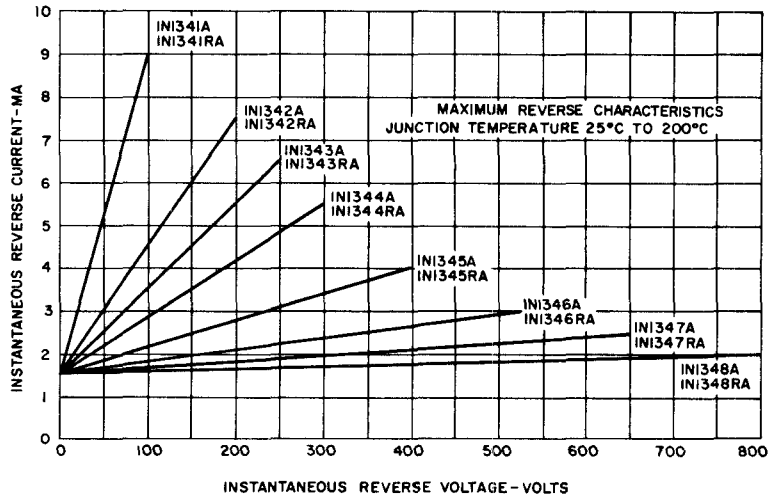
NOTES:

- Angular orientation of this terminal is undefined.
- 10-32 UNF-2A. Maximum pitch diameter of plated threads shall be basic pitch diameter (.1697", 4.29 MM). Ref: (Screw thread standards for Federal Services 1957) Handbook H28, P1

- NOTES: (1) UNIT WEIGHT - .25 OZ  
(2) MICA WASHER IN MOUNTING KIT MAY ADD APPROX 6.5°C/WATT THERMAL RESISTANCE STUD TO HEAT SINK

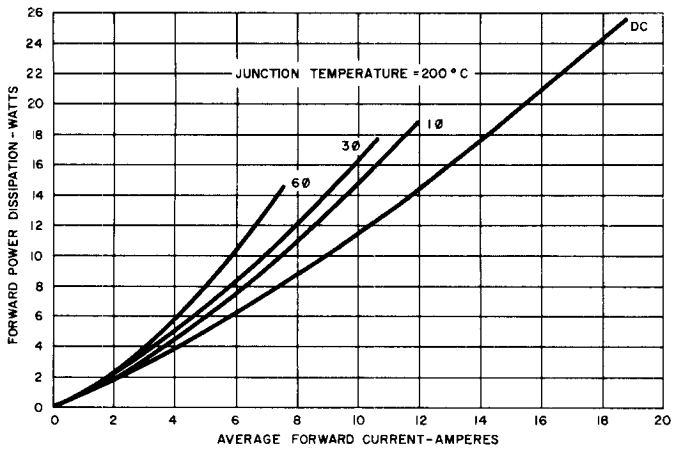


1. MAXIMUM AND TYPICAL FORWARD CHARACTERISTICS

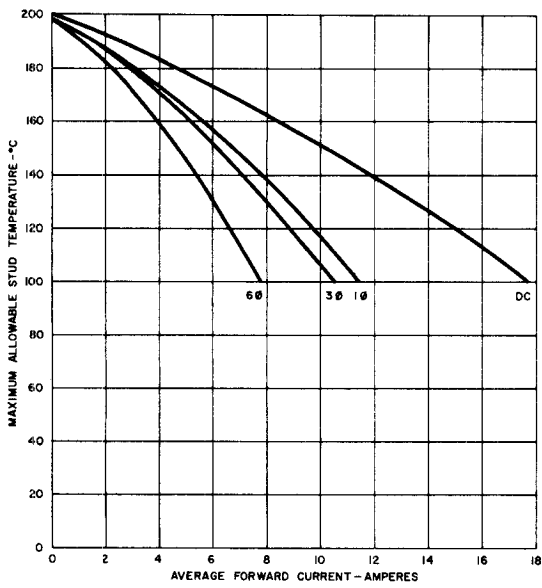


2. REVERSE CHARACTERISTICS

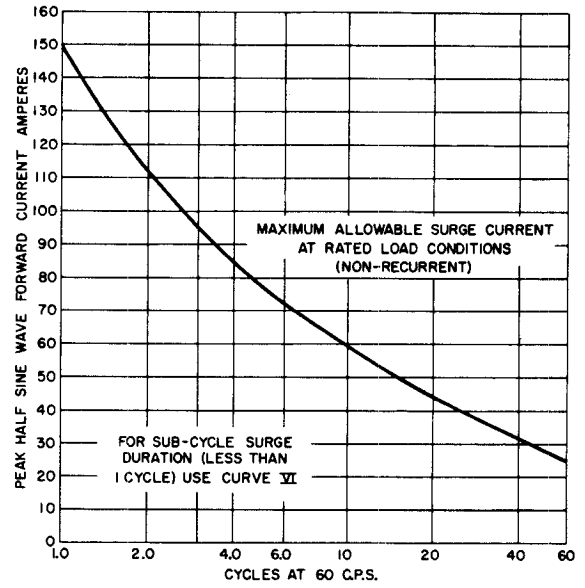
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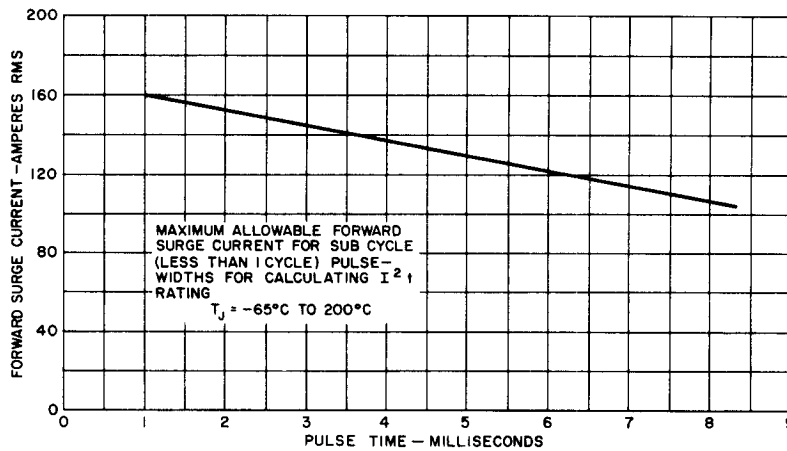
**3. FORWARD POWER DISSIPATION**



**4. MAXIMUM ALLOWABLE STUD TEMPERATURE**



**5. SURGE RATING (1-60 cycles)**

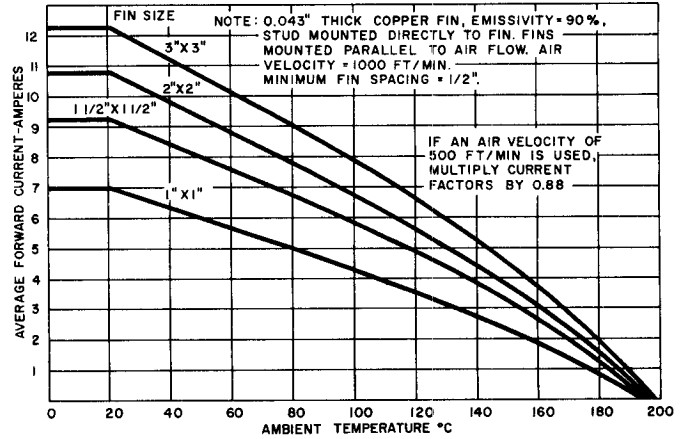
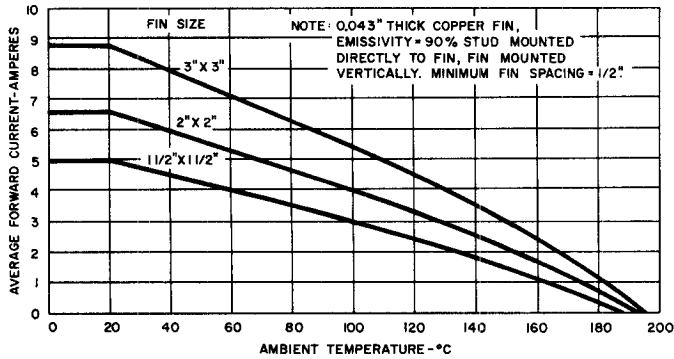
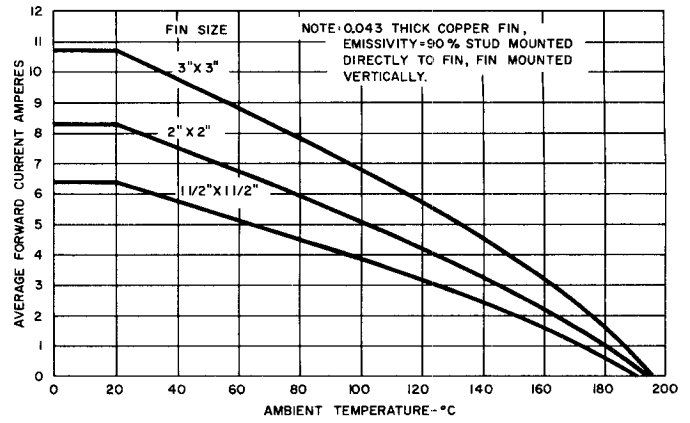


**6. SUB-CYCLE SURGE RATING**

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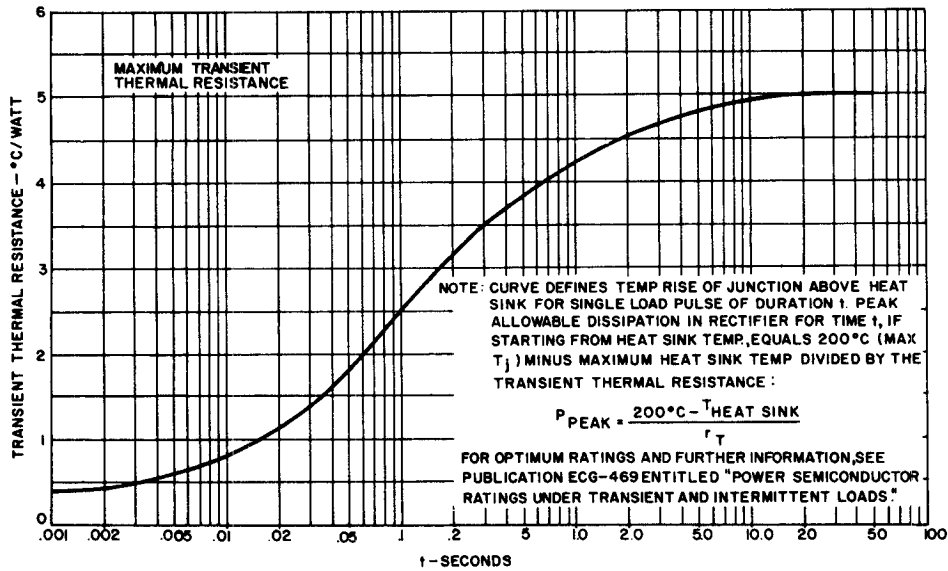
TO USE GRAPHS 7, 8, 9

1. Enter graph at vertical axis with desired current multiplied by proper current factor:  
 DC-0.80            3φ-1.15  
 1φ-1.00            6φ-1.40
2. Intercept desired fin curve
3. Read on horizontal axis the maximum allowable ambient temperature.



**8. REQUIRED FIN SIZE—FREE CONVECTION, IMPEDED RADIATION**

**9. REQUIRED FIN SIZE—FORCED CONVECTION, IMPEDED RADIATION**



**10. MAXIMUM TRANSIENT THERMAL RESISTANCE**