



70U, 300U-A SERIES

250 and 300 Amp Avg Power Silicon Rectifier Diodes

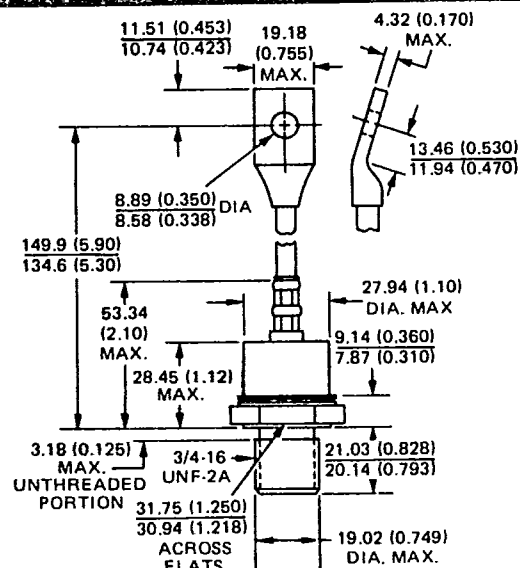
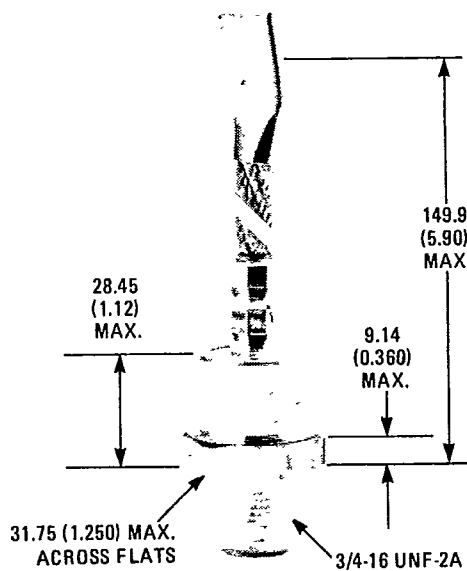
Major Ratings and Characteristics

	70U	300U-A, 302U-A	Units
$I_{F(AV)}$	250	300	A
@ T_C	150	130	°C
I_{FSM}	@ 50 Hz	5500	A
	@ 60 Hz	5750	
I^2t	@ 50 Hz	151 000	A^2s
	@ 60 Hz	138 000	
$I^2\sqrt{t}$	2,139,000	2,139,000	$A^2\sqrt{s}$
V_{RRM} Range	100 – 1200	50-1200	V

Description and Features

- Peak reverse voltage up to 1200V
- Popular series for rough service
- For many AC-to-DC circuit applications

CASE STYLE AND DIMENSIONS



300U-A Series

Conforms to JEDEC Outline DO-205AB (DO-9)
All Dimensions in Millimeters and Inches
For other outlines see page 231.

PART NUMBER ①		V_{RRM} Max. repetitive peak reverse voltage (V)	V_{RSM} Max. non-repetitive peak reverse voltage (V)	V_R Max. average reverse voltage (V)	I_{RM} Max. peak reverse current at rated V_{RRM} (mA)
		$T_J = -40^\circ\text{C to } 200^\circ\text{C}$	$T_J = -40^\circ\text{C to } 200^\circ\text{C}$	$T_J = -40^\circ\text{C to } 200^\circ\text{C}$	$T_J = 200^\circ\text{C}$
DO-205AB (DO-9)					
70U10		100	200	100	60
70U20		200	300	200	60
70U40		400	500	400	60
70U60		600	720	600	60
70U80		800	960	800	60
70U100		1000	1200	1000	60
70U120		1200	1440	1200	60
		$T_J = -65^\circ\text{C to } 200^\circ\text{C}$	$T_J = -65^\circ\text{C to } 200^\circ\text{C}$	$T_J = -65^\circ\text{C to } 200^\circ\text{C}$	$T_J = 175^\circ\text{C}$
300U5A	302U5A	50	100	50	40
300U10A	302U10A	100	200	100	40
300U20A	302U20A	200	300	200	40
300U30A	302U30A	300	400	300	40
300U40A	302U40A	400	500	400	40
300U60A	302U60A	600	720	600	40
300U80A	302U80A	800	960	800	35
300U100A	302U100A	1000	1200	1000	30
300U120A	302U120A	1200	1440	1200	25

① Basic part number indicates cathode-to-case. For anode-to-case, add "R" to part number, i.e., 70UR20, 300UR120A etc.

ELECTRICAL SPECIFICATIONS

		70U	300U-A/302U-A	Units	Conditions		
$I_{F(AV)}$	Max. average forward current	250	300	A	1-phase operation, 180° conduction		
	@ Max. T_C	150	130	°C			
I_{FSM}	Max. peak one-cycle non-repetitive surge current	5500		A	Half cycle 50 Hz sine wave or 6 ms rectangular pulse Following any rated load condition and with rated V_{RRM} applied.		
		5750					
		6550		A	Half cycle 50 Hz sine wave or 6 ms rectangular pulse Following any rated load condition and with V_{RRM} applied following surge = 0.		
		6850					
I^2t	Max. I^2t for fusing	151 000		A^2s	t = 10 ms With rated V_{RRM} applied following surge, initial $T_J = T_J$ Max. t = 8.3 ms		
		138 000					
	Max. I^2t for individual device fusing	214 000				A	t = 10 ms With $V_{RRM} = 0$ following surge, initial $T_J = T_J$ Max. t = 8.3 ms
		195 000					
$I^2\sqrt{t}$	Max. $I^2\sqrt{t}$ for individual device fusing	2 139 000		$A^2\sqrt{s}$	t = 0.1 to 10 ms, $V_{RRM} = 0$ following surge ②		
V_{FM}	Max. peak forward voltage	1.30	—	V	$I_{FM} = \pi \times I_{F(AV)}$ (785 A peak), $T_J = 25^\circ\text{C}$ $I_{FM} = \pi \times I_{F(AV)}$ (942 A peak), $T_J = 25^\circ\text{C}$		
		—	1.40	V			
$V_{F(TO)}$	Max. value of threshold voltage	0.610		V	$T_J = 200^\circ\text{C}$		
r_F	Max. value of forward slope resistance	0.751		m Ω			

THERMAL-MECHANICAL SPECIFICATIONS

T_J	Max. operating junction temperature range	-65 to 200 ③		°C	
T_{stg}	Max. storage temperature range	-65 to 200 ③		°C	
R_{thJC}	Max. internal thermal resistance, junction-to-case	0.18		K/W	DC operation
R_{thCS}	Thermal resistance, case-to-sink	0.08		K/W	Mounting surface flat, smooth, and greased.
T	Mounting torque	Min.	31.1 (275)	Nm (lbf-in)	Non lubricated threads
		Max.	36.7 (325)		
wt	Approximate weight	213 (7.5)		g (oz)	
	Case style	DO-205AB (DO-9) ④			JEDEC

② I^2t for time $t_x = I^2\sqrt{t} \cdot \sqrt{t_x}$

④ 302U-A uses IR case style B-26 (see page B-83).

③ -40 to 200°C for 70U.

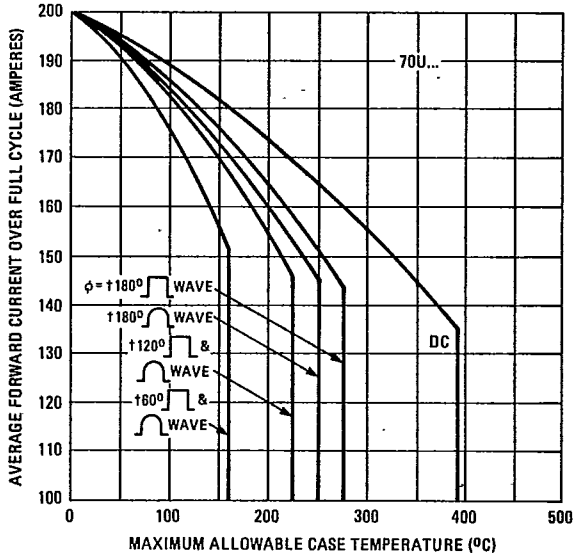


Fig. 1 - Average Forward Current Vs. Maximum Allowable Case Temperature, 70U Series

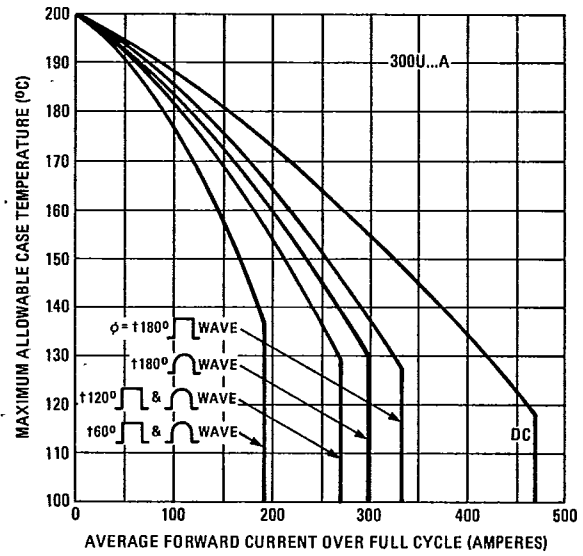


Fig. 2 - Average Forward Current Vs. Maximum Allowable Case Temperature, 300U-A Series

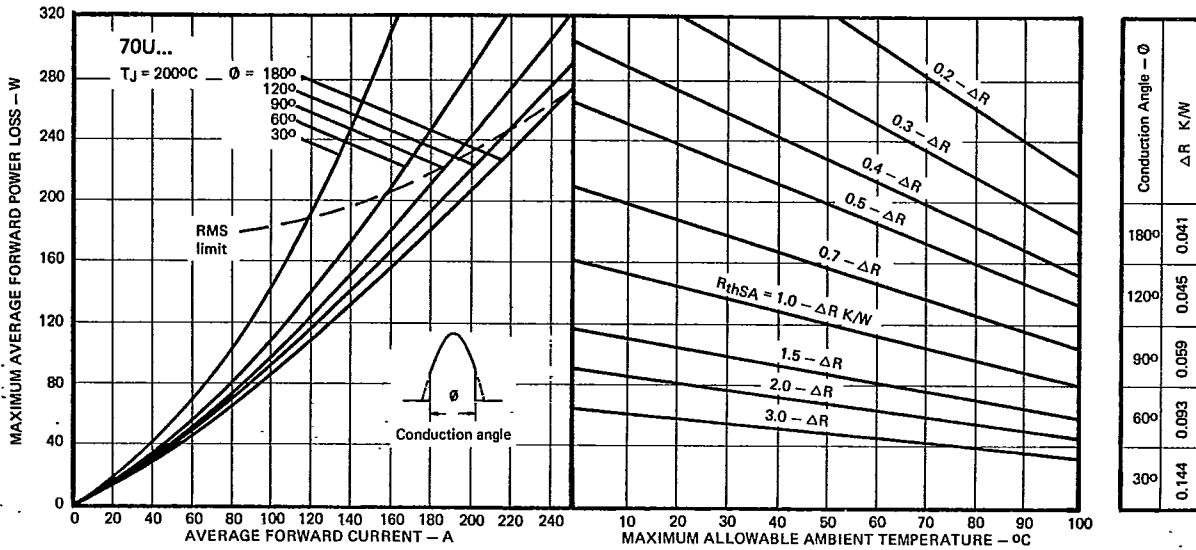


Fig. 3 - Current Rating Nomogram (Sinusoidal Waveforms 40-1000 Hz), 70U Series.

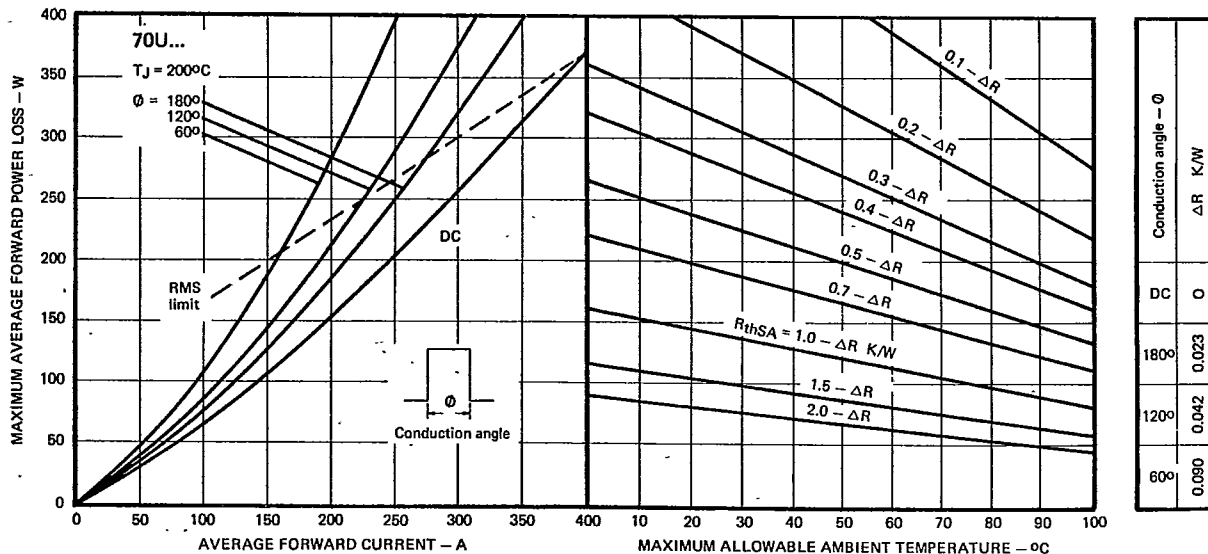


Fig. 4 - Current Rating Nomogram (Rectangular Waveforms), 40 - 1000 Hz, 70U Series

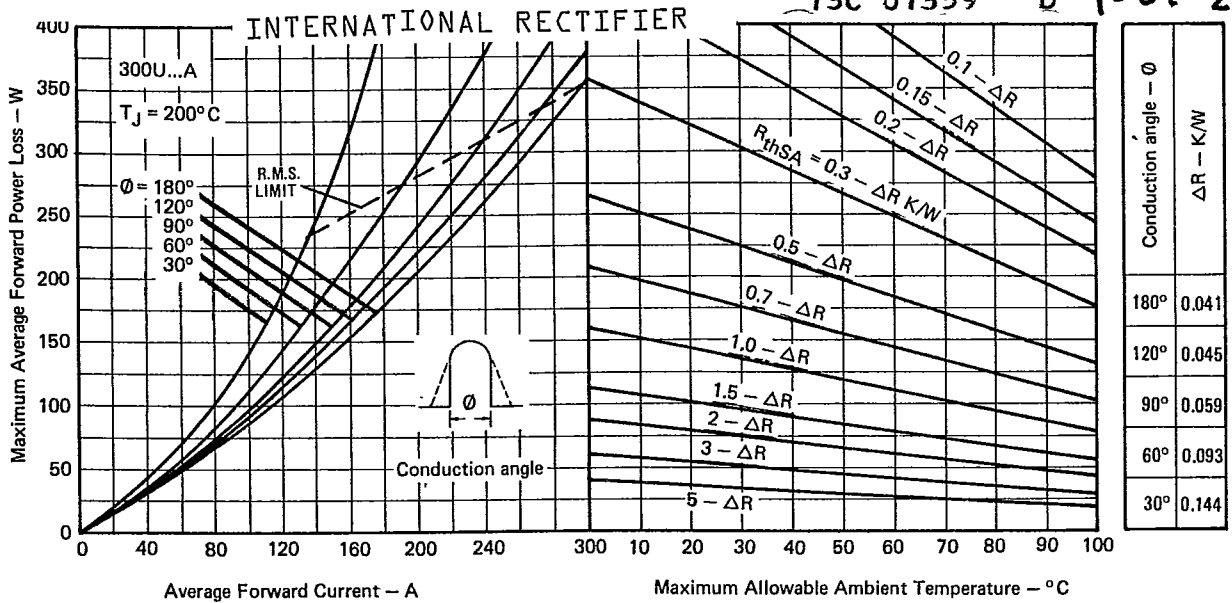


Fig. 5 - Current Rating Nomogram (Sinusoidal Waveforms), 300U...A Series

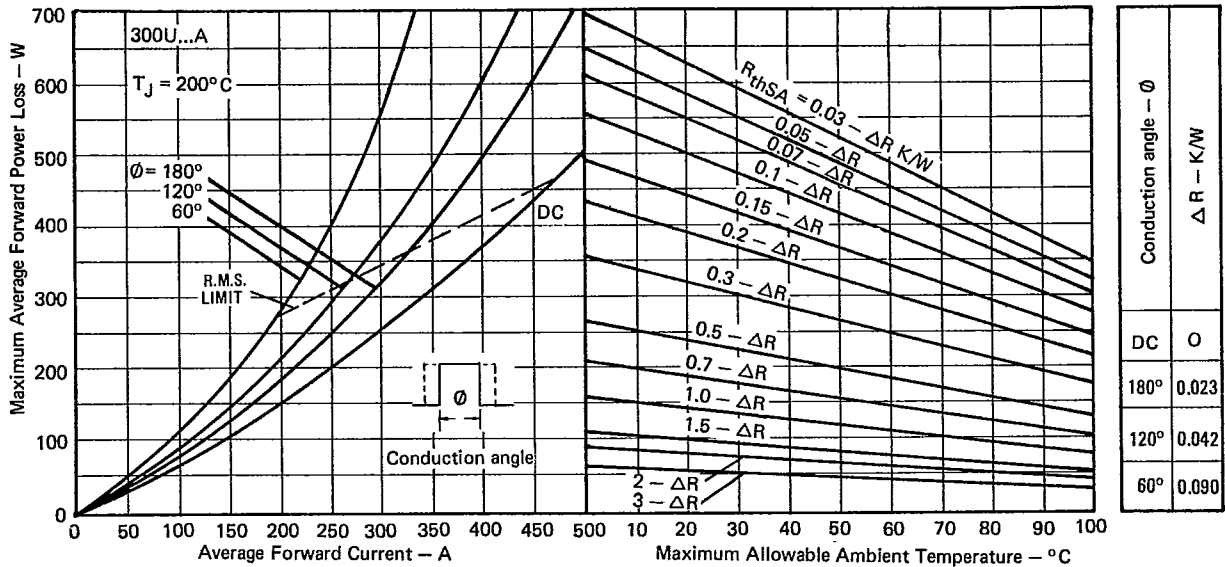


Fig. 6 - Current Rating Nomogram (Rectangular Waveforms) 300U...A Series

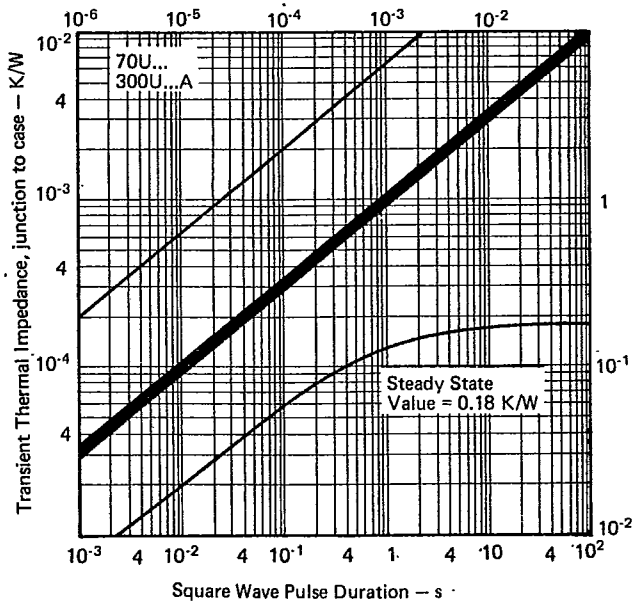


Fig. 7 - Maximum Transient Thermal Impedance, Junction-to-Case Vs. Pulse Duration, Both Series.

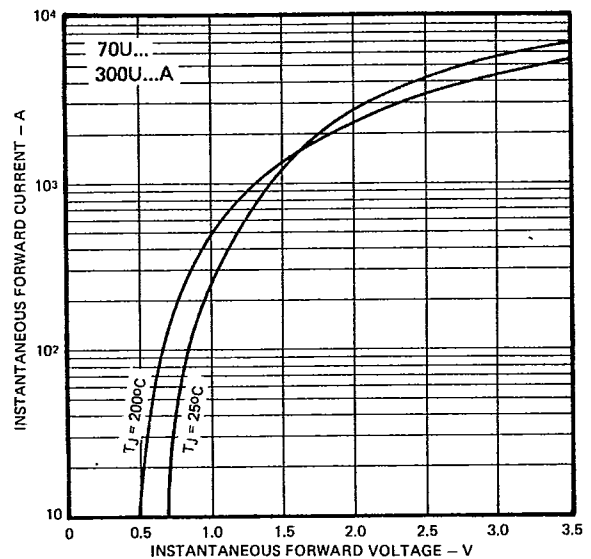


Fig. 8 - Maximum Instantaneous Forward Current Vs. Instantaneous Forward Voltage, Both Series.



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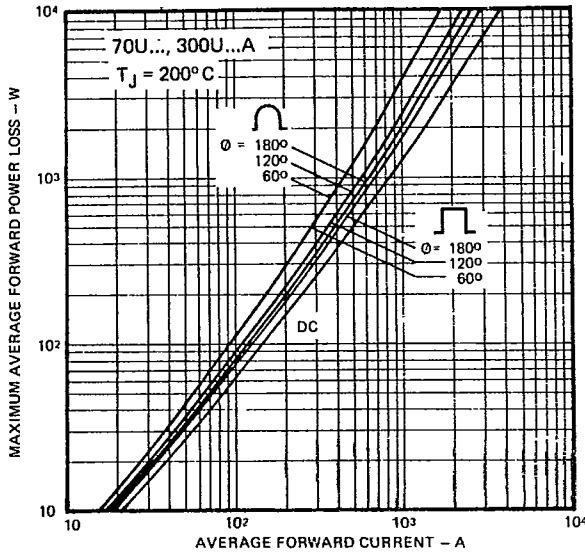


Fig. 9 - Maximum High Level Forward Power Loss Vs. Average Forward Current, Both Series.

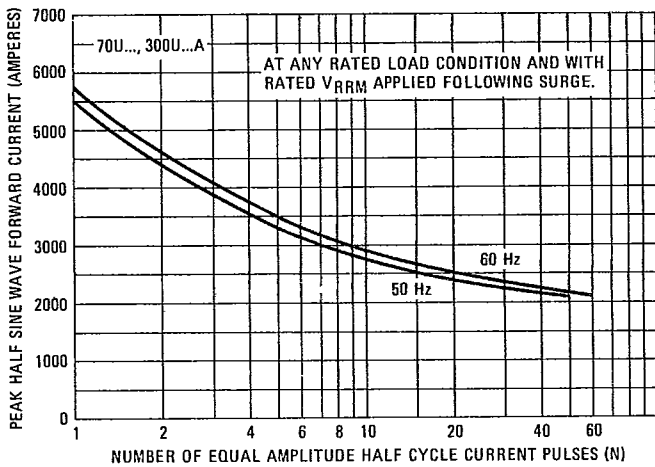
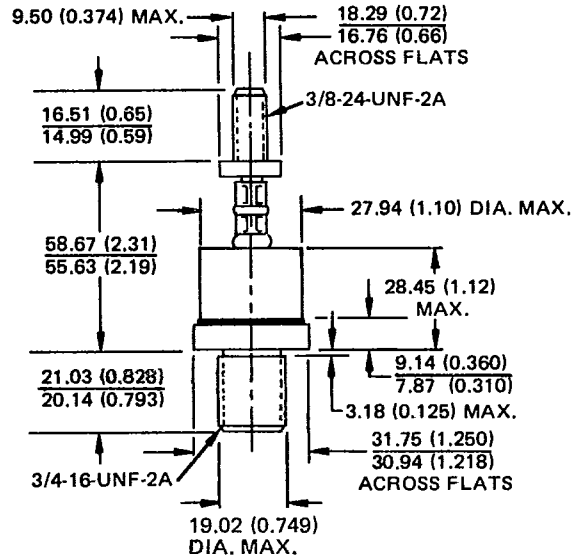


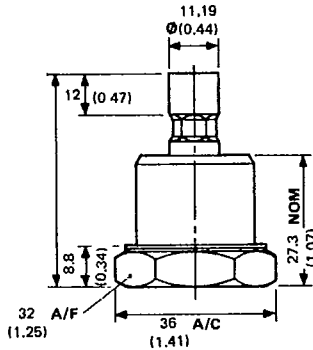
Fig. 10 - Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, Both Series.



Torque Limits on Threaded Top Terminal Min. 75 (8.5) lbf-in. (N·m)
(Lubricated Threads) Max. 100 (11.3) lbf-in. (N·m)
Hex on top stud must be held while this torque is applied

302U-A Series
IR Case Style B26
Dimensions in Millimeters and (Inches)

72UF...

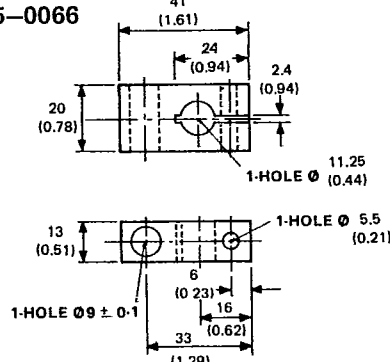


NOTES

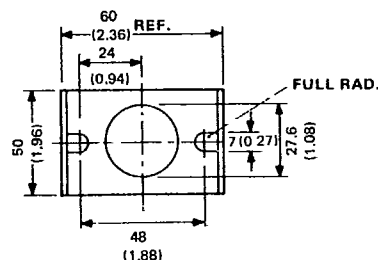
- 70UF... supplied with spring clamp K41-0232
- 72UF... supplied with pinch bolt 35-0066 and spring clamp K41-0232

All dimensions in millimetres

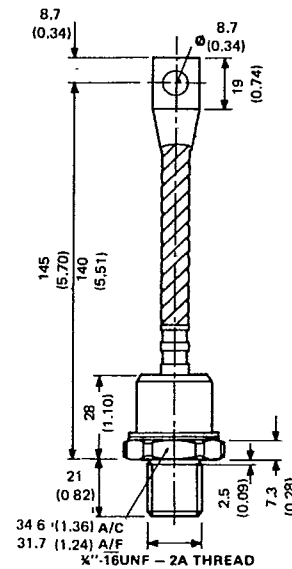
Pinch Bolt 35-0066



Spring Clamp K41-0232



70U...



Similar to JEDEC : DO-9
IEC 191 : A10U1
BS 3934 : SO-42
DIN41887 : 106 B 2
All dimensions in millimetres.