

RECTIFIERS

Fast Recovery, 6 Amp to 9 Amp

UTR4405-UTR4440
UTR5405-UTR5440
UTR6405-UTR6440
UTR4405HR-UTR4440HR
UTR5405HR-UTR5440HR
UTR6405HR-UTR6440HR

FEATURES

- Continuous Rating: to 9A
- Controlled Avalanche
- Surge Rating: to 150A
- Fast Recovery, 40kHz Operation
- PIV: to 400V
- Miniature Package

DESCRIPTION

The same basic construction as all Unitrode diodes, but using a miniature stud mounting and larger junction area, provides a 9 Amp continuous and 150 Amp surge rating in a package only one fifth the weight and one quarter the volume of conventional types.

ABSOLUTE MAXIMUM RATINGS

Peak Inverse Voltage	6 Amp Series	7.5 Amp Series	9 Amp Series
50V	UTR4405/4405HR	UTR5405/5405HR	UTR6405/6405HR
100V	UTR4410/4410HR	UTR5410/5410HR	UTR6410/6410HR
200V	UTR4420/4420HR	UTR5420/5420HR	UTR6420/6420HR
400V	UTR4440/4440HR	UTR5440/5440HR	UTR6440/6440HR

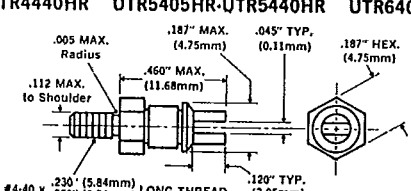
	6 Amp Series	7.5 Amp Series	9.0 Amp Series
Maximum Average D.C. Output Current @ $T_C = 100^\circ\text{C}$	6.0A	7.5A	9.0A
Non-Repetitive Sinusoidal Surge Current (8.3ms)	120A	135A	150A
Operating Temperature Range	-195°C to $+175^\circ\text{C}$		
Storage Temperature Range	-195°C to $+200^\circ\text{C}$		
Thermal Resistance	7.5°C/W		

MECHANICAL SPECIFICATIONS

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Part Identification: Numerals and polarity letter indicate UTR type number, e.g., UTR 4405.
Polarity: Cathode to Stud is standard. Reverse polarity denoted by "R" suffix.
Finish: Metal parts gold plated per MIL-G-45204, Type II.
Weight: 1.5 grams, typical.
Also available with insulated stud. Reference Design Note 17.
Installation
Maximum unlubricated stud torque: 28 inch ounces.
Mounting hardware supplied.
Do not use a screwdriver in the turret slot for installation purposes, or damage may result

BODY C — Stud Mount

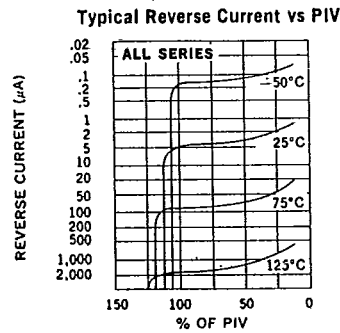
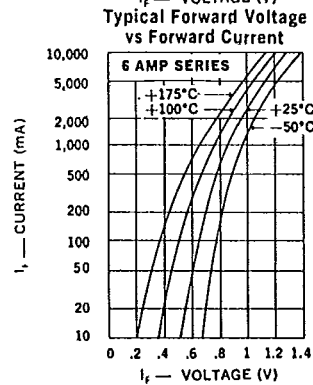
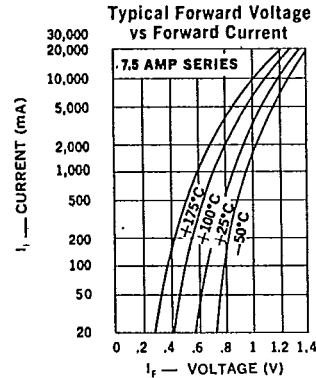
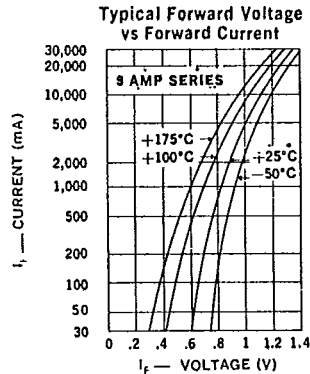


UTR4405-UTR4440 UT5405-UTR5440 UTR6405-UTR6440
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ELECTRICAL SPECIFICATIONS (at 25°C unless noted)

Type	PIV	Maximum Forward Voltage Drop	Maximum Reverse Current @ PIV		Maximum Reverse Recovery Time*
			25°C	100°C	
UTR6405/6405HR UTR6410/6410HR UTR6420/6420HR UTR6440/6440HR	50V 100V 200V 400V	1.1V @ 6.0A	10 μ A	300 μ A	300ns 300ns 400ns 500ns
UTR5405/5405HR UTR5410/5410HR UTR5420/5420HR UTR5440/5440HR	50V 100V 200V 400V	1.1V @ 5.0A	10 μ A	300 μ A	300ns 300ns 400ns 500ns
UTR4405/4405HR UTR4410/4410HR UTR4420/4420HR UTR4440/4440HR	50V 100V 200V 400V	1.1V @ 4.0A	10 μ A	300 μ A	300ns 300ns 400ns 500ns

*Recovery time is measured from 1A to 1A, recovering to 0.5A.



OPTIONAL HIGH RELIABILITY (HR) SCREENING

The following tests are performed on 100% of the devices specified UTR4405HR through UTR6440HR.

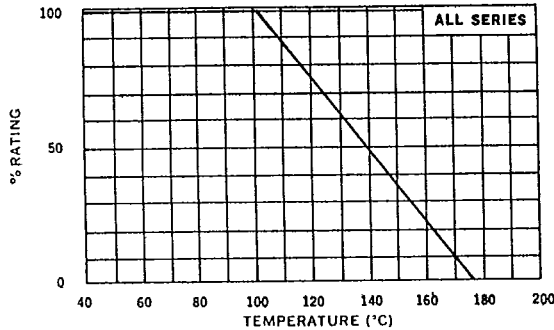
SCREEN	MIL-STD-750 METHOD	CONDITIONS
1. High Temperature Life (Stabilization Bake)	.1032	24 Hours @ T _A = 175°C
2. Thermal Shock (Temperature Cycling)	1051	10 Cycles @ T _A = (-55°C to +150°C)
3. Interim Electrical Parameters	—	V _F and I _R @ 25°C
4. Power Burn-In	1038	96 Hours @ T _C = 100°C, I _O = 50% Rated V _R = Rated
5. Final Electrical and Delta Parameters	Go/No Go	ΔI _R ± 100% or 1 μ A (whichever is greater) ΔV _R ± 2%

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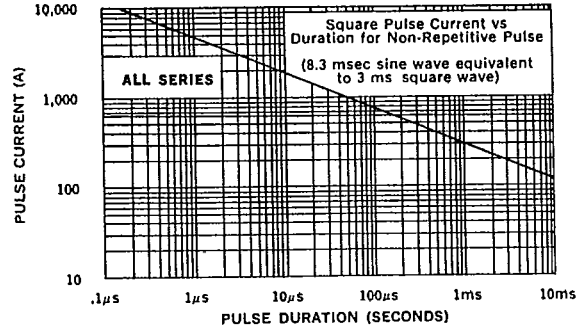
UTR5405-UTR5440
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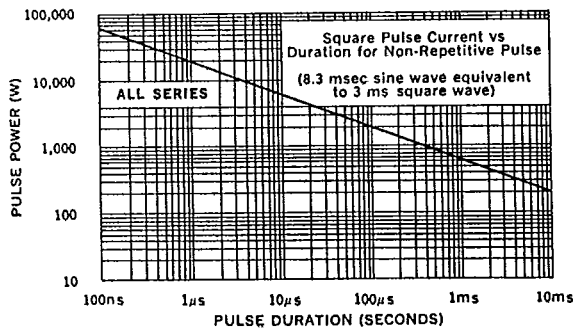
Current Rating vs Case Temperature



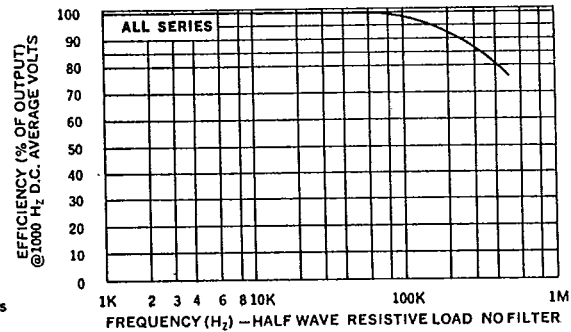
Forward Pulse Current vs Pulse Duration



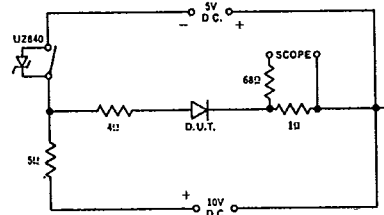
Reverse Pulse Power vs Pulse Duration



Efficiency vs Frequency at Rated Current (Sine Wave)



Reverse Recovery Circuit



MECHANICAL SPECIFICATIONS

