RECTIFIERS
Fast Recovery, 6 Amp to 9 Amp

UTR4405-UTR4440
UTR5405-UTR5440
UTR6405-UTR6440
UTR4405HR2-UTR4440HR2
UTR5405HR2-UTR5440HR2
UTR6405HR2-UTR6440HR2

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 Microsemi 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.

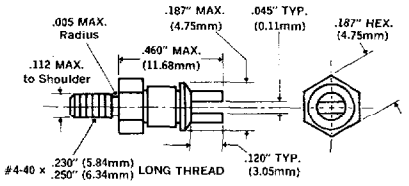
ABSOLUTE MAXIMUM RATINGS

Peak Inverse Voltage	6 Amp Series	7.5 Amp Series	9 Amp Series
50V	UTR4405/4405HR2	UTR5405/5405HR2	UTR6405/6405HR2
100V	UTR4410/4410HR2	UTR5410/5410HR2	UTR6410/6410HR2
200V	UTR4420/4420HR2	UTR5420/5420HR2	UTR6420/6420HR2
400V	UTR4440/4440HR2	UTR5440/5440HR2	UTR6440/6440HR2

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

MECHANICAL SPECIFICATIONS

UTR4405-UTR4440 UTR5405-UTR5440 UTR6405-UTR6440
UTR4405HR2-UTR4440HR2 UTR5405HR2-UTR5440HR2 UTR6405HR2-UTR6440HR2



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

Microsemi Corp.
Watertown
The diode experts

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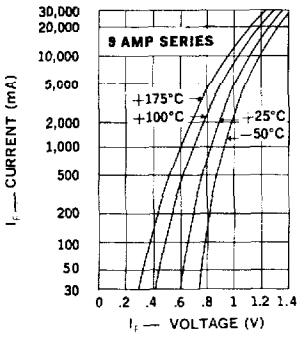
ELECTRICAL SPECIFICATIONS (at 25°C unless noted)

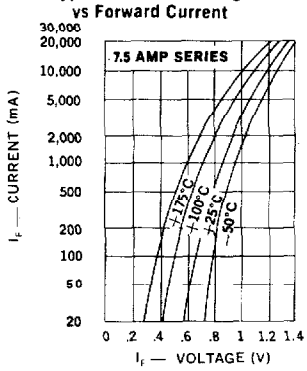
Type	PIV	Maximum Forward Voltage Drop	Maximum Reverse Current @ PIV		Maximum Reverse Recovery Time*
			25°C	100°C	
UTR6405/6405HR2	50V	1.1V @ 6.0A	10μA	300μA	300ns
UTR6410/6410HR2	100V				300ns
UTR6420/6420HR2	200V				400ns
UTR6440/6440HR2	400V				500ns
UTR5405/5405HR2	50V	1.1V @ 5.0A	10μA	300μA	300ns
UTR5410/5410HR2	100V				300ns
UTR5420/5420HR2	200V				400ns
UTR5440/5440HR2	400V				500ns
UTR4405/4405HR2	50V	1.1V @ 4.0A	10μA	300μA	300ns
UTR4410/4410HR2	100V				300ns
UTR4420/4420HR2	200V				400ns
UTR4440/4440HR2	400V				500ns

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

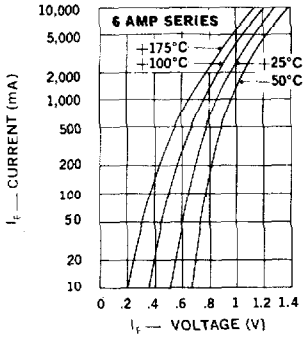
Typical Forward Voltage vs Forward Current



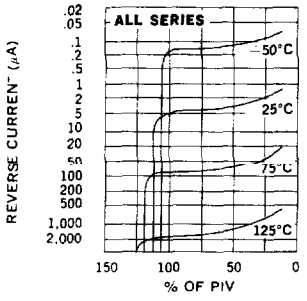
Typical Forward Voltage vs Forward Current



Typical Forward Voltage vs Forward Current



Typical Reverse Current vs PIV



OPTIONAL HIGH RELIABILITY (HR2) SCREENING

The following tests are performed on 100% of the devices specified UTR4405HR2 through UTR6440HR2.

SCREEN	MIL-STD-750 METHOD	CONDITIONS
1. High Temperature	1032	24 Hours @ 175°C
2. Temperature Cycling	1051	C. 20 Cycles, −65 to +175°C. No dwell required @ 25°C, t ≥ min. extremes
3. Hermetic Seal a. Gross Leak	1071	E, ZYGLO
4. High Temperature Reverse Bias (HTRB)	1038	A, T_A = 150°C, V_R = 80% of rating, 48 hours
5. Interim Electrical Parameters	GO/NO GO	V_F + I_R @ 25°C
6. Power Burn-in	1038	B, T_A = 25°C, 96 Hours, I_O adjusted 150°C, ≤ I_j ≤ 175°C
7. Final Electrical Parameters	GO/NO GO	V_F + I_R @ 25°C PDA = 10% (Final Electricals)

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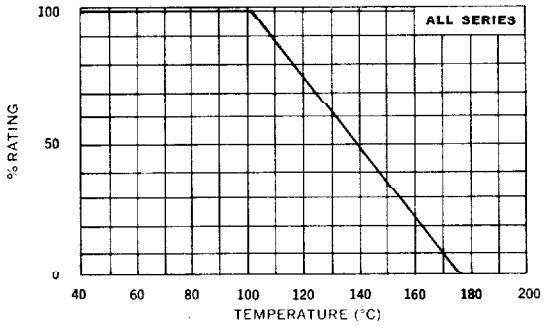
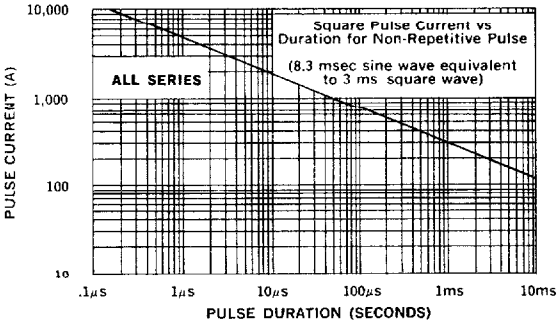
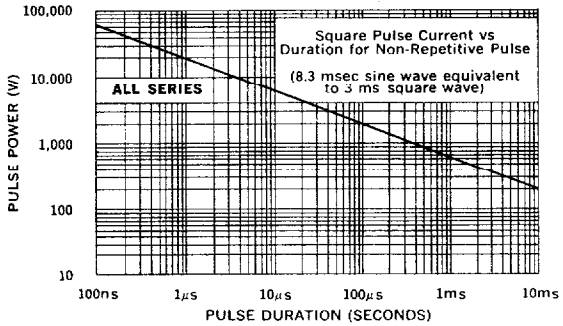
Current Rating vs Case Temperature



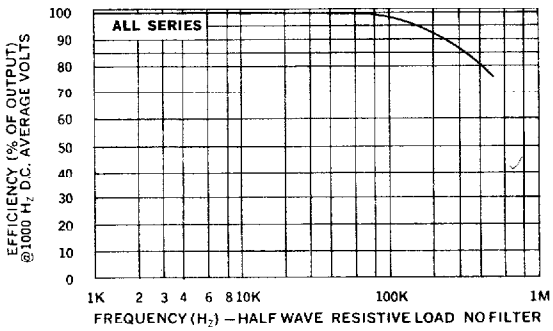
Forward Pulse Current vs Pulse Duration



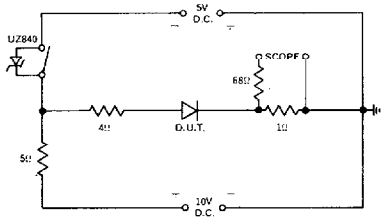
Reverse Pulse Power vs Pulse Duration



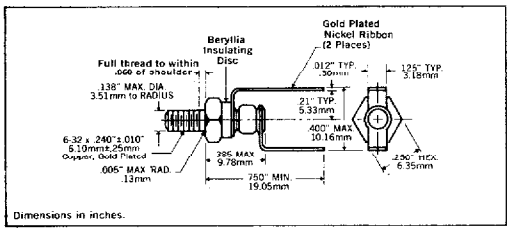
Efficiency vs Frequency at Rated Current (Sine Wave)



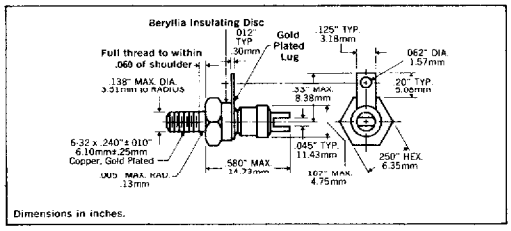
Reverse Recovery Circuit



MECHANICAL SPECIFICATIONS



Style W



Style V

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