



UM4300 / UM7300

FOR ATTENUATOR APPLICATIONS

DESCRIPTION

The UM4300 and UM7300 series combine a diode chip of extremely thick intrinsic region with a low thermal resistance construction. This results in diodes uniquely applicable to very low distortion linear attenuators and specialized functions. The UM4300 series, with large cross-sectional chip area offers the highest power capability, of the two series. The UM7300

series offers lower capacitance.

Both diode series are intended for use in linear attenuators operating from HF to beyond 1 GHz. Low distortion is a result of transit time frequencies below 5 MHz.

Operated as RF switches, either diode series can be operated at low dc reverse bias voltages, to hold off much higher RF voltage levels.

KEY FEATURES

- Extremely low distortion performance
- Useful frequency range extends below 500 kHz
- Power dissipation to 20 W (UM4300)
- Capacitance as low as 0.7 pF (UM7300)
- Voltage ratings to 1000V
- Non cavity design
- Thermally matched configuration
- Compatible with automatic insertion equipment

IMPORTANT: For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>

ABSOLUTE MAXIMUM RATINGS AT 25° C (UNLESS OTHERWISE SPECIFIED)

Package	Condition	UM4300	UM7300
		P_D θ	P_D θ
A	25 °C Pin Temperature	20 W 7.5 °C/W	7.5 W 20 °C/W
B & E	½ in. total length to 25 °C Contact Free Air	10 W 15 °C/W 2.5 W	4 W 37.5 °C/W
C	25 °C Stud Temperature	20 W 7.5 °C/W	7.5 W 20 °C/W
D	25 °C Stud Temperature	15 W 10 °C/W	6 W 25 °C/W
SM	25 °C End Cap Temperature	15 W 20 °C/W	5.5 W 18 °C/W
All	1 us pulse (Single)	500 kW	100 kW

APPLICATIONS/BENEFITS

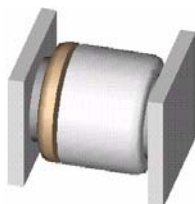
- Isolated stud package available
- Surface mount package available
- RoHS compliant packaging available: use UMX4301SM, etc.

VOLTAGE RATINGS

Reverse Voltage @ 10 uA		
100	UM4301	UM7301
200	UM4302	UM7302
400	-	-
600	UM4306	UM7306
800	-	-
1000	UM4310	UM7310



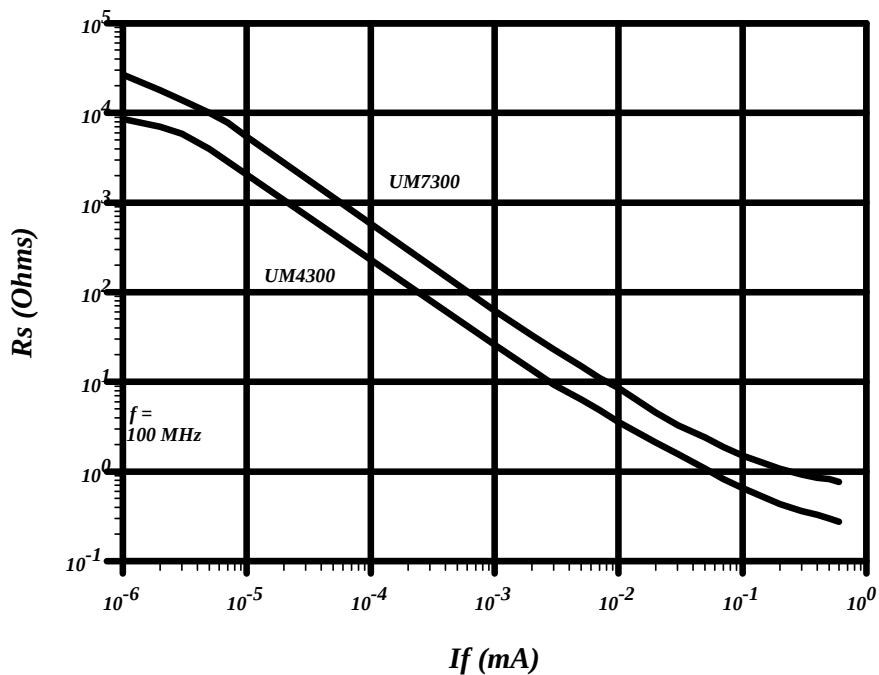
Style "B"



Style "SM"

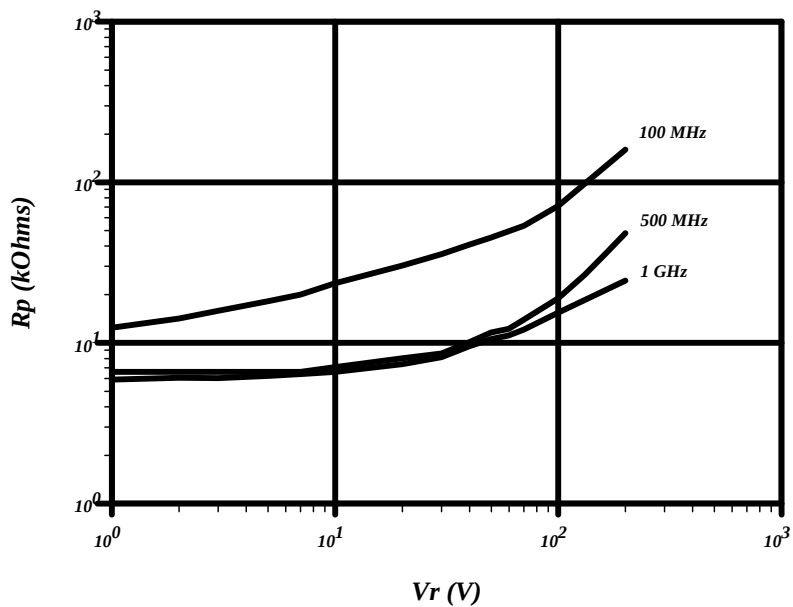
Parameter	Symbol	Conditions	UM4300	UM7300	Units
Reverse Current (Max)	I_R	At rated voltage	10	10	μA
Series Resistance(Max)	R_S	$I_f = 100 \text{ mA}$, $F = 100 \text{ MHz}$	1.5	3.0	Ohms
Series Resistance(Min)	R_S	$I_f = 10 \text{ uA}$, $F = 100 \text{ MHz}$	1000	3000	Ohms
Capacitance (Max)	C_T	$V_R = 100 \text{ V}$, $F = 1 \text{ MHz}$	2.2	0.7	pF
Parallel Resistance(Min)	R_P	$V_R = 100 \text{ V}$, $F = 100 \text{ MHz}$	200k	150k	Ohms
Carrier Lifetime(Min)	τ	$I_f = 10 \text{ mA}$	6.0	4.0	us
I-Region Width (Min)	W	-	250	250	μm

R_s versus I_f
TYPICAL

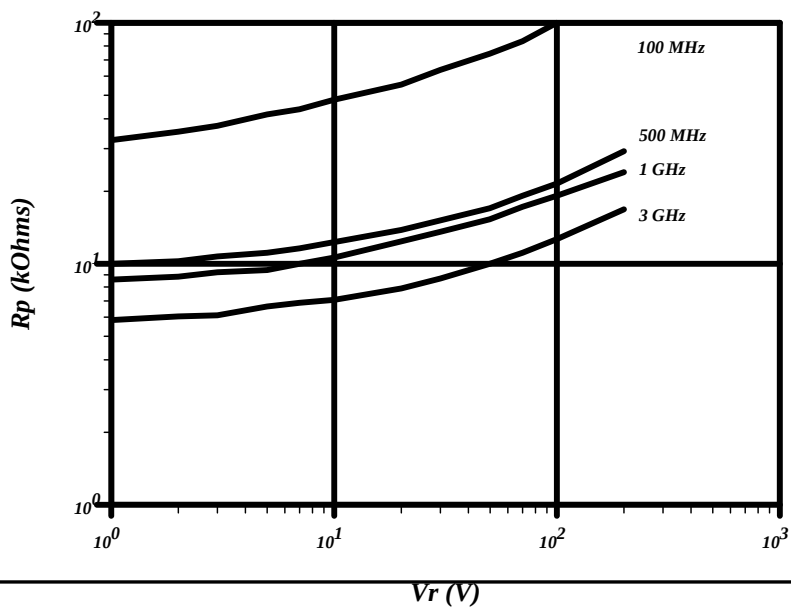


UM4300

*PARALLEL RESISTANCE versus REVERSE VOLTAGE
TYPICAL*

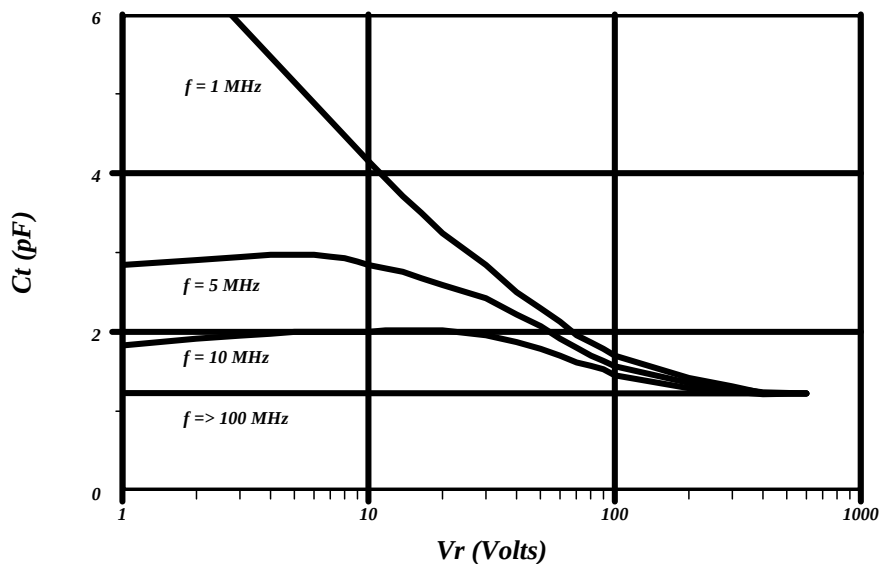

UM7300

*PARALLEL RESISTANCE versus REVERSE VOLTAGE
TYPICAL*

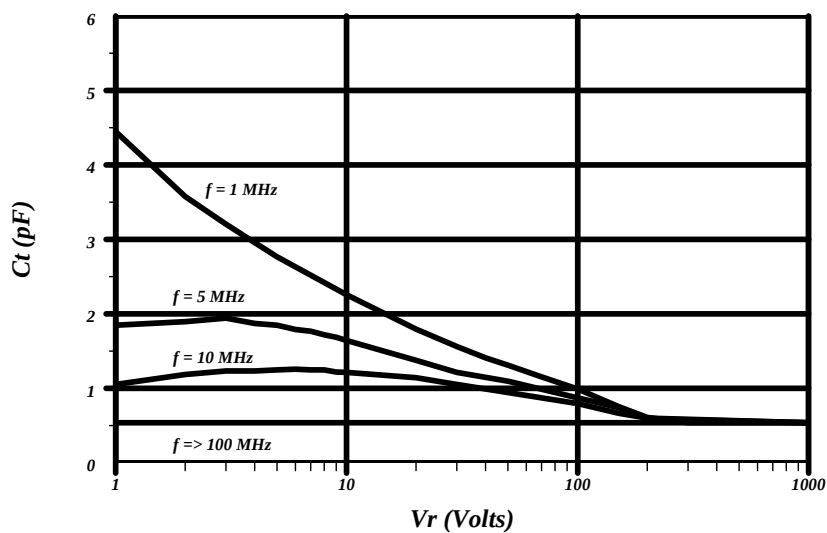


UM4300

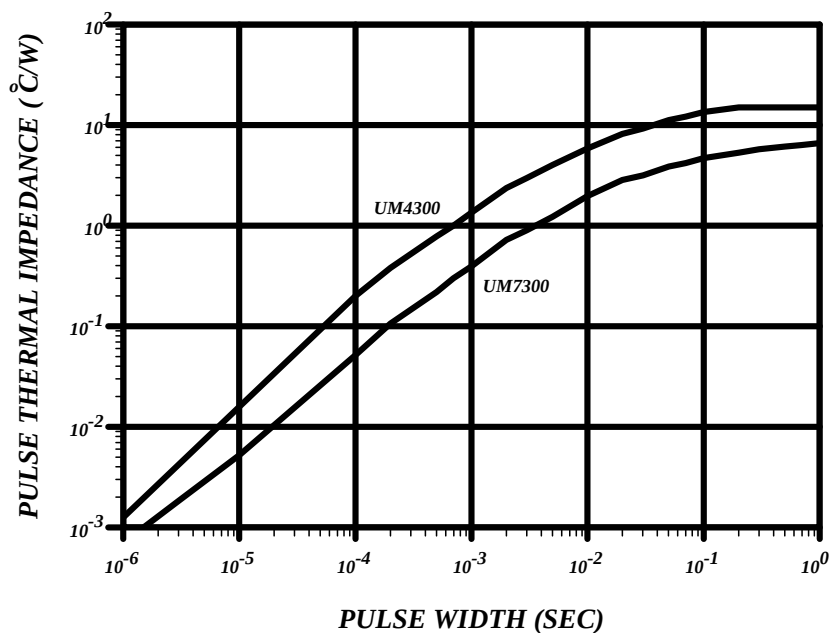
*Ct versus Vr
TYPICAL*


UM7300

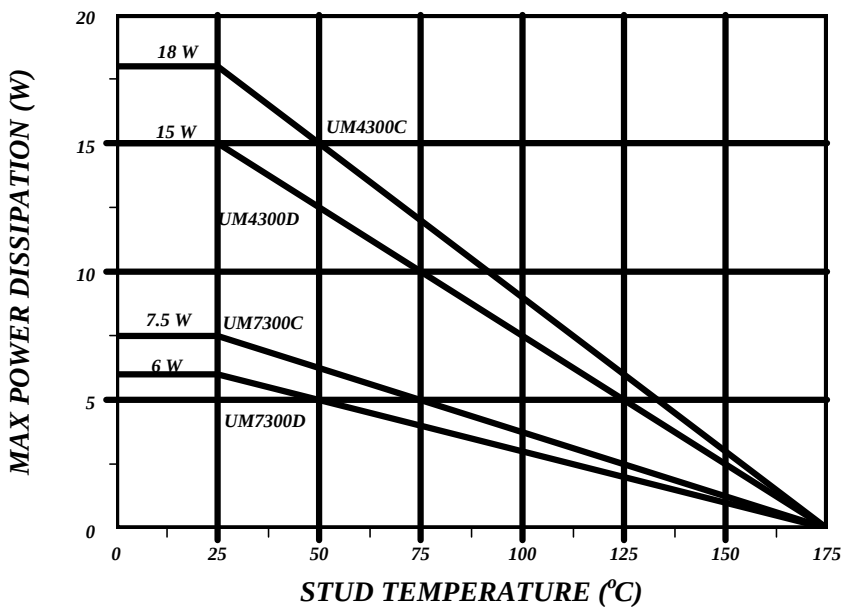
*Ct versus Vr
TYPICAL*

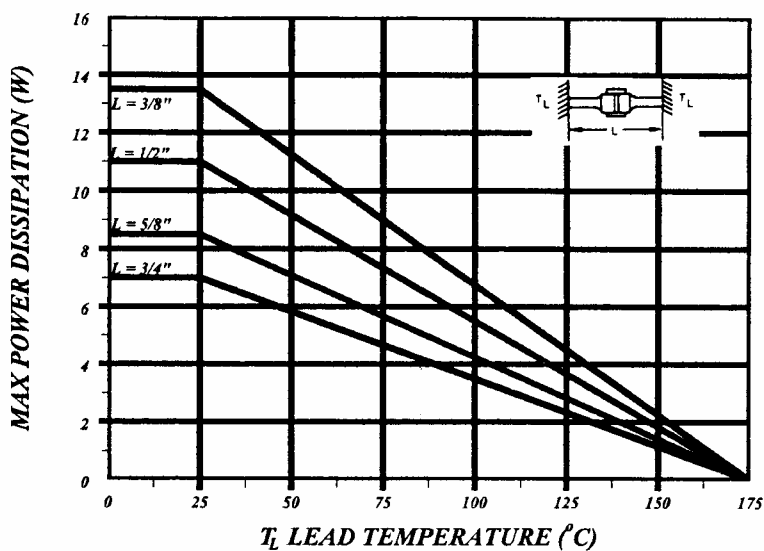
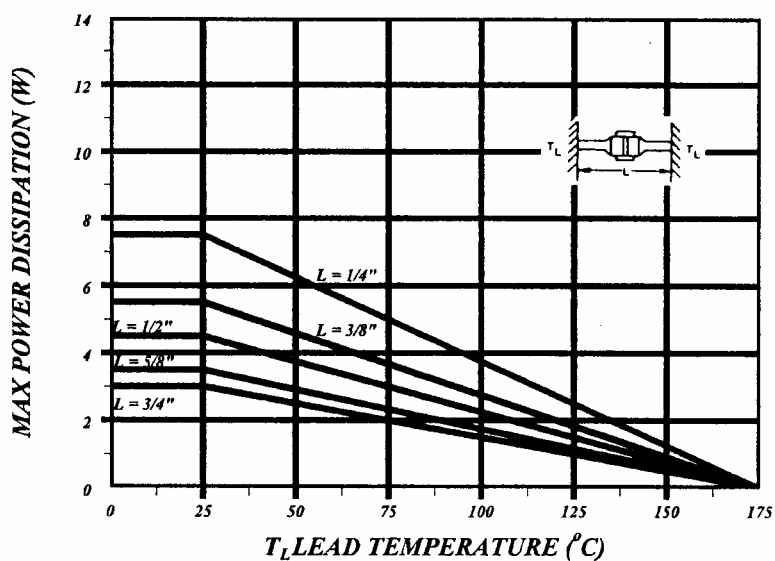


**PULSE THERMAL IMPEDANCE VERSUS WIDTH
TYPICAL**

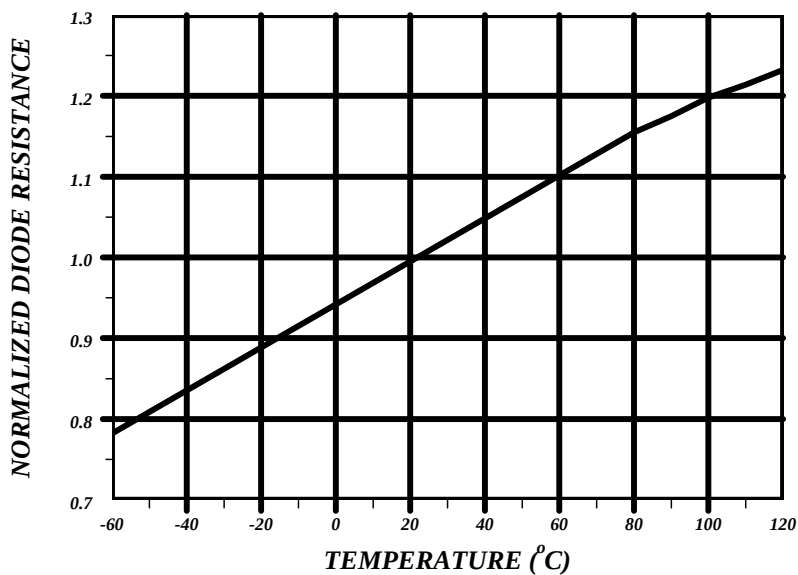


POWER RATING STUD MOUNTED DIODES

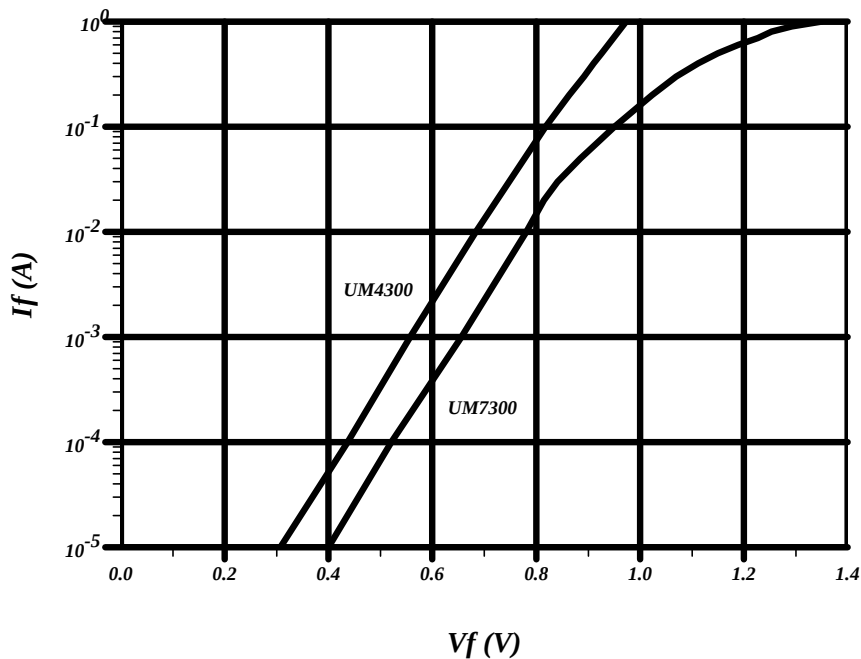


UM4300
MAX POWER DISSIPATION versus LEAD TEMPERATURE

UM7300
MAX POWER DISSIPATION versus LEAD TEMPERATURE


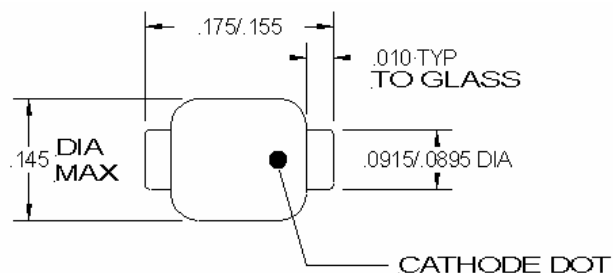
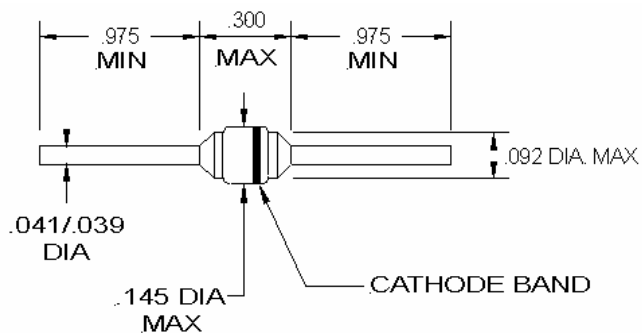
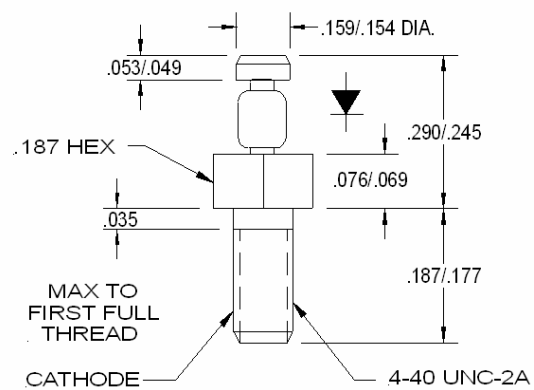
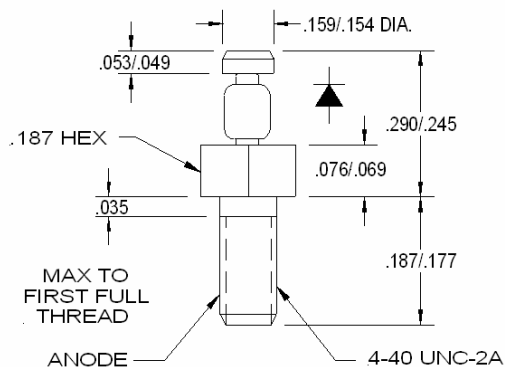
UM4300/UM7300
NORMALIZED R_s versus TEMPERATURE



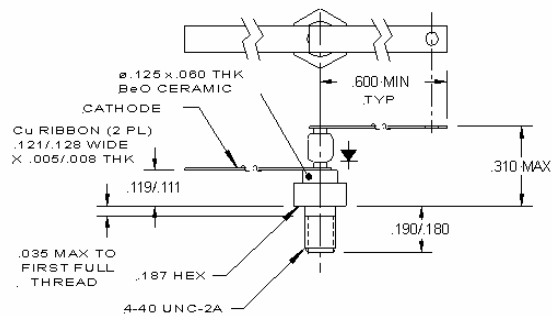
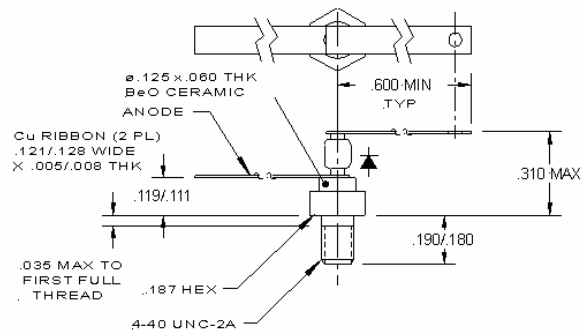
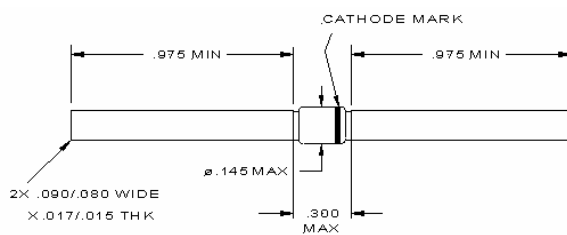
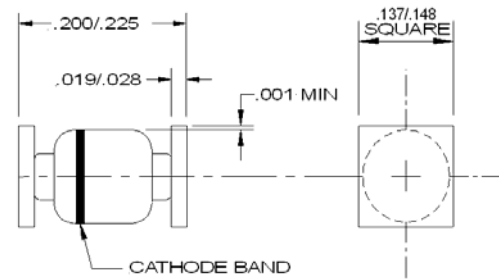
V_f versus I_f
TYPICAL

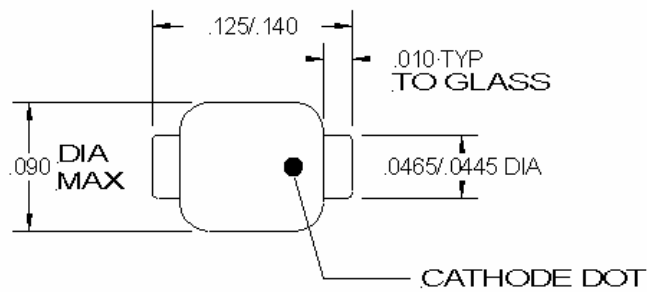
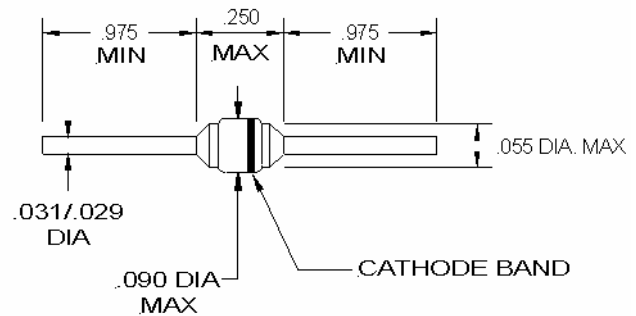
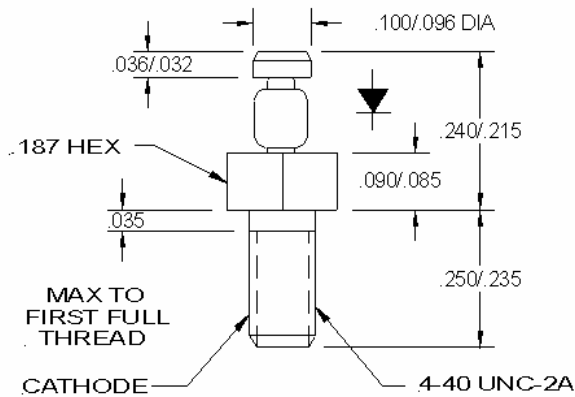
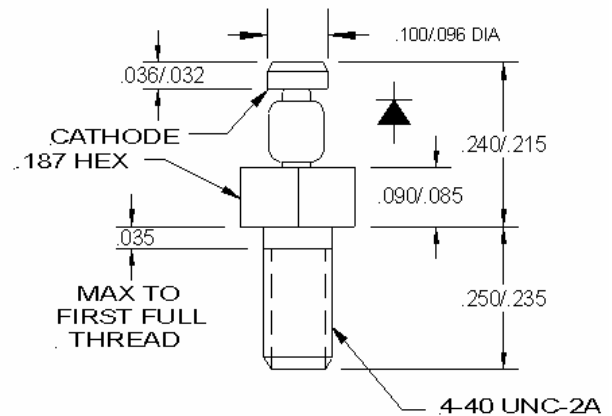


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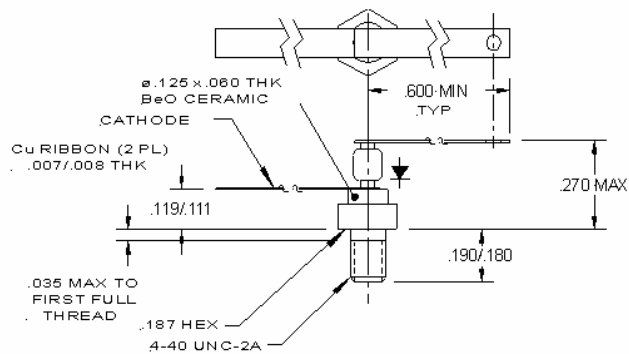
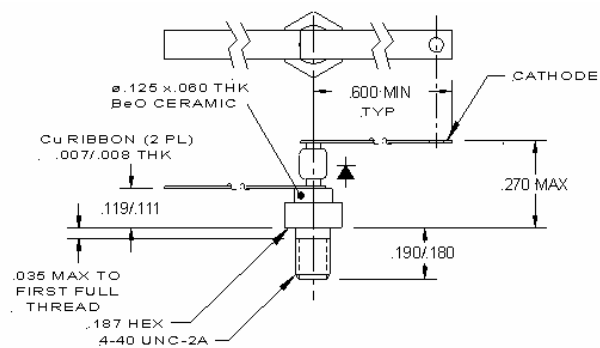
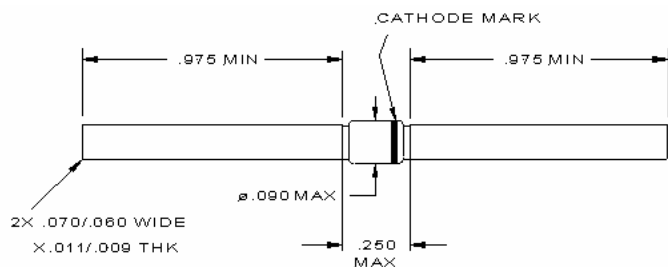
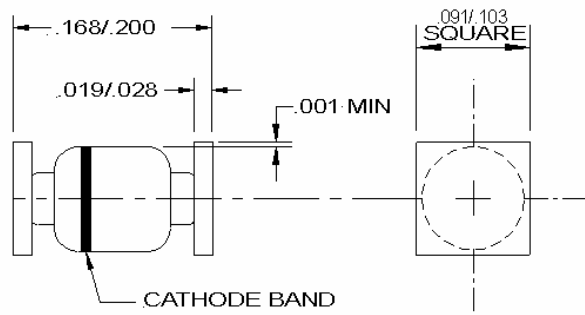
STYLE "A"

STYLE "B"

STYLE "C"

STYLE "CR"


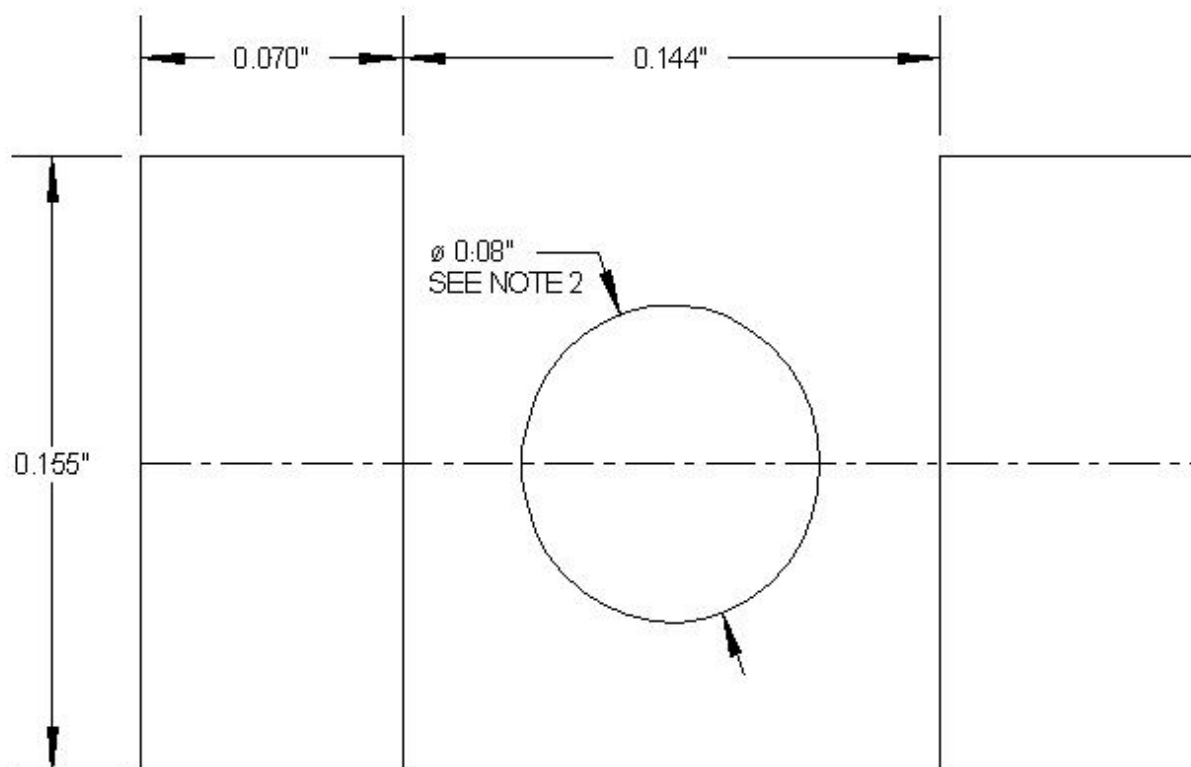
UM4300

STYLE "D"

STYLE "DR"

STYLE "E"

STYLE "SM"


UM7300
STYLE "A"

STYLE "B"

STYLE "C"

STYLE "CR"


UM7300

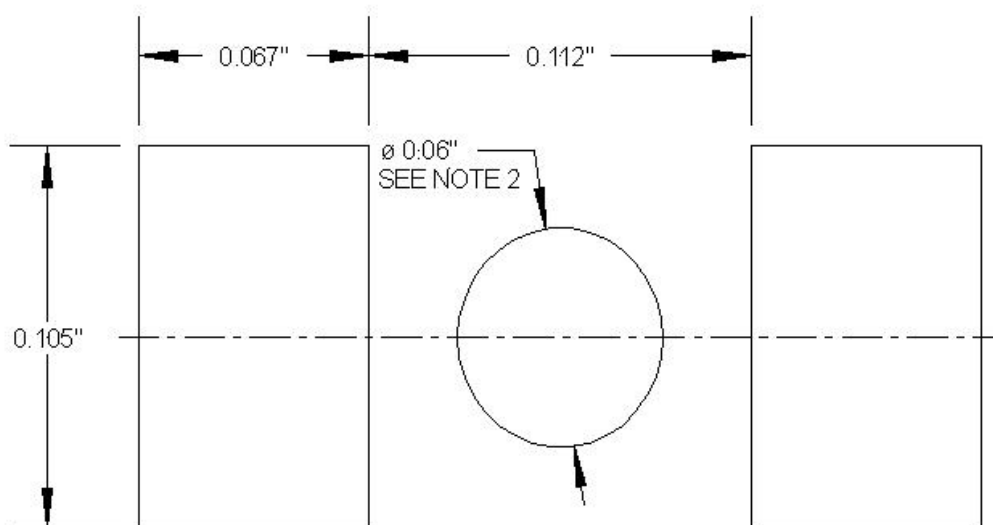
STYLE "D"

STYLE "DR"

STYLE "E"

STYLE "SM"


UM4300 STYLE "SM" FOOTPRINT

B SIZE
(STANDARD LARGE
SQUARE END CAP OUTLINE)

NOTES:

- 1: THESE DIMENSIONS WILL MATCH THE TERMINALS AND PROVIDE FOR ADDITIONAL SOLDER FILLETS AT THE OUTBOARD ENDS AT LEAST AS WIDE AS THE TERMINALS THEMSELVES, ASSUMING ACCURACY OF DEVICE PLACEMENT WITHIN 0.005".
- 2: IF THE MOUNTING METHOD CHOSEN REQUIRES USE OF AN ADHESIVE SEPARATE FROM THE SOLDER COMPOUND, A ROUND (OR SQUARE) SPOT OF CEMENT AS SHOWN SHOULD BE CENTRALLY LOCATED.

UM7300 STYLE “SM” FOOTPRINT**A SIZE
(STANDARD SMALL
SQUARE END CAP OUTLINE)****NOTES:**

1. These dimensions will match the terminals and provide for additional solder fillets at the outboard ends at least as wide as the terminals themselves, assuming accuracy of placement within 0.005"
2. If the mounting method chosen requires use of an adhesive separate from the solder compound, a round (or square) spot of cement as shown should be centrally located.



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NOTES:

www.Microsemi.com

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