



BEAM LEAD SCHOTTKY BARRIER MIXER DIODES

ASI's Beam Lead Schottky Barrier Mixer Diodes are manufactured by the deposition of a suitable barrier metal on an epitaxial silicon layer to form a junction. These diodes are designed for applications up to 40 GHz for microwave integrated circuits and hybrid elements in stripline and microstrip circuitry.

Several barrier heights are available which include:

LOW BARRIER (N-TYPE) - for applications where the local oscillator drive level is between -10dBm and +10dBm

MEDIUM BARRIER (N-TYPE) - for applications where the local oscillator drive level is between -5dBm and +15dBm

HIGH BARRIER (N-TYPE) - for applications where the local oscillator drive level is between 0dBm and +20dBm

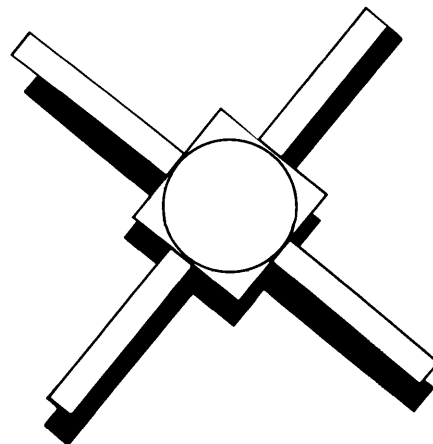
LOW BARRIER (P-TYPE) - for applications where low 1/f noise for use in Doppler radar and motion detectors is required.

The Beam Lead Diodes are available as monolithic devices or mounted in a wide variety of epoxy lead frames and hermetically sealed packages.

All of the Beam Lead Schottky Barrier Mixer Diodes meet or exceed the Military Environmental Specifications of MIL-S-19500 and Methods from MIL-STD-750 and/or customer specifications.

ABSOLUTE MAXIMUM RATINGS:

Storage Temperature:	-65°C to +175°C
Operating Temperature:	-65°C to +150°C
RF CW Power (incident):	75mW
Beam Terminal Strength:	4 grams minimum



LOW BARRIER (N-TYPE)

FREQUENCY	TYPE NUMBER	N _F (dB)	C _J @ OV (pF)		V _F @ 1mA (mV)		V _B @ 10 μ A (V)	R _S @ 10mA (OHMS)
			MIN	MAX	MIN	MAX		
		MAX					MIN	MAX
S	ABL3001	6.0	0.30	0.50	225	300	2.0	3
S	ABL3002	6.5	0.30	0.50	225	300	2.0	7
X	ABL9001	6.5	0.15	0.30	250	325	2.0	7
X	ABL9002	7.0	0.15	0.30	250	325	2.0	12
K μ	ABL1601	7.5	0.05	0.15	275	350	2.0	16
K μ	ABL1602	8.0	0.05	0.15	275	350	2.0	25

MEDIUM BARRIER (N-TYPE)

FREQUENCY	TYPE NUMBER	N _F (dB)	C _J @ OV (pF)		V _F @ 1mA (mV)		V _B @ 10 μ A (V)	R _S @ 10mA (OHMS)
			MIN	MAX	MIN	MAX		
		MAX					MIN	MAX
S	ABM3001	6.0	0.30	0.50	300	400	3.0	4
X	ABM9001	6.5	0.15	0.30	325	425	3.0	10
K μ	ABM1601	7.5	0.05	0.15	350	450	3.0	16

HIGH BARRIER (N-TYPE)

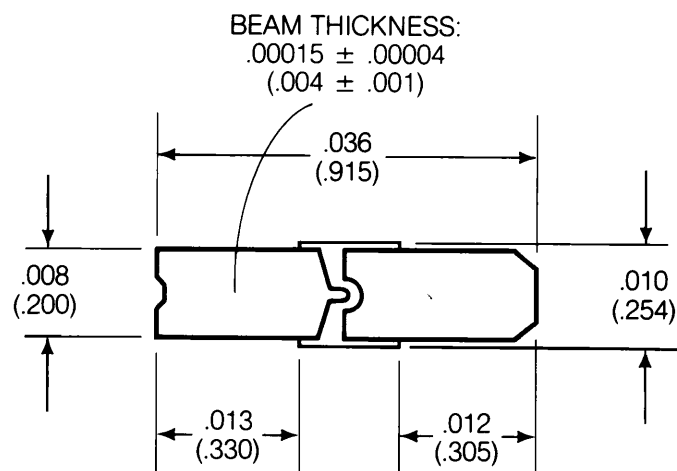
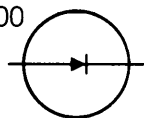
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			MIN	MAX	MIN	MAX		
		MAX					MIN	MAX
S	ABH3001	6.0	0.30	0.50	550	625	4.0	4
X	ABH9001	6.5	0.15	0.30	550	650	5.0	10
K μ	ABH1601	7.5	0.05	0.15	600	750	5.0	13

LOW BARRIER (P-TYPE)

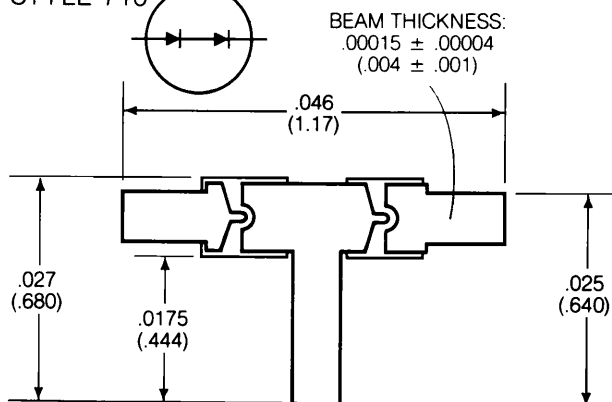
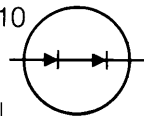
FREQUENCY	TYPE NUMBER	N _F (dB)	C _J @ OV (pF)		V _F @ 1mA (mV)		V _B @ 10 μ A (V)	R _S @ 10mA (OHMS)
			MIN	MAX	MIN	MAX		
		MAX					MIN	MAX
X	ABP9001	6.5	0.15	0.30	200	300	2.0	12
X	ABP9002	7.0	0.15	0.30	200	300	2.0	18
K μ	ABP1601	7.5	0.05	0.15	200	350	2.0	16
K μ	ABP1602	8.0	0.05	0.15	200	350	2.0	25

PACKAGE STYLES

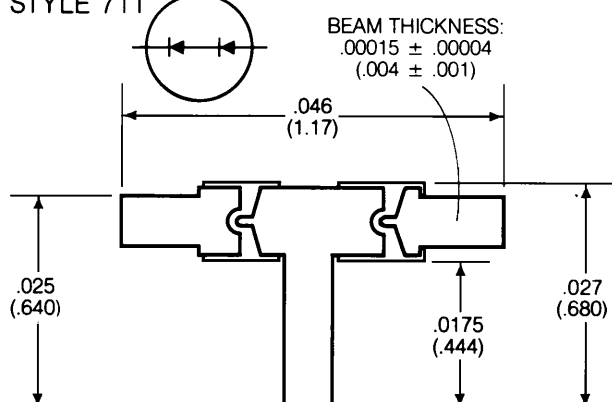
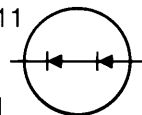
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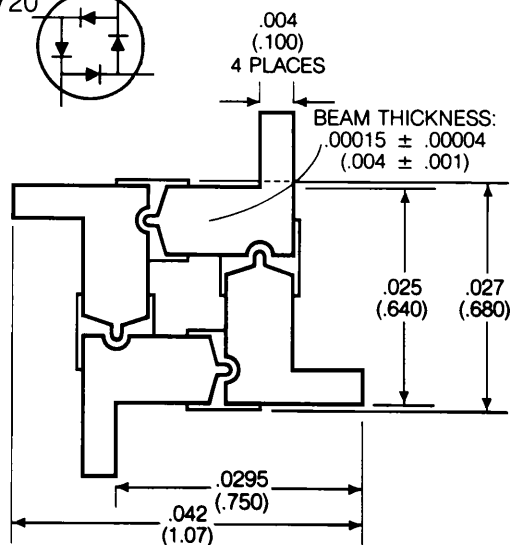
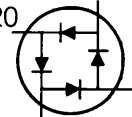
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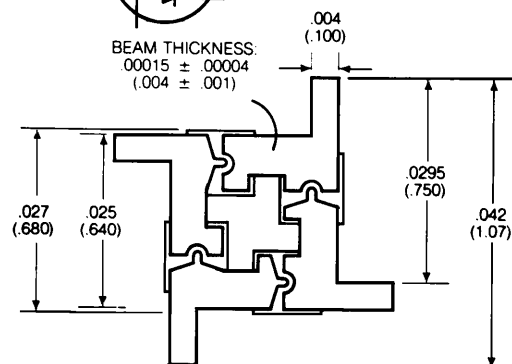
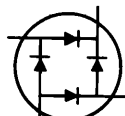
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STYLE 720



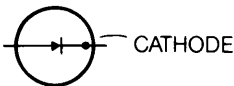
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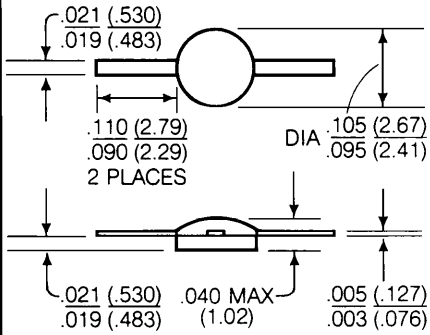
DIMENSIONS ABOVE ARE IN INCHES WITH MILLIMETERS IN PARENTHESES

PACKAGE STYLES

STYLE 800



TOP VIEW

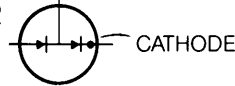


STYLE 801

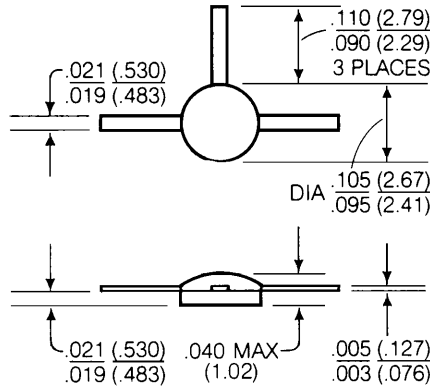


TOP VIEW

STYLE 802



TOP VIEW

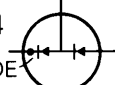


STYLE 803



TOP VIEW

STYLE 804



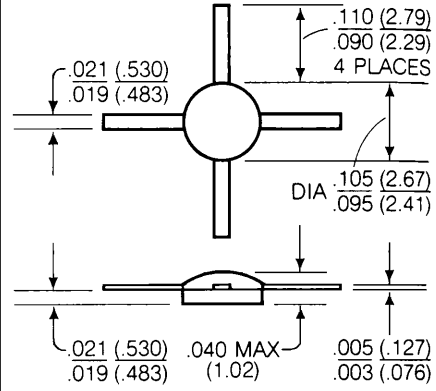
CATHODE

TOP VIEW

STYLE 805



TOP VIEW



STYLE 806

COMMON CATHODE



TOP VIEW

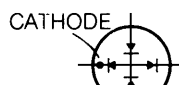
STYLE 807

CATHODE



TOP VIEW

STYLE 808



TOP VIEW

STYLE 809

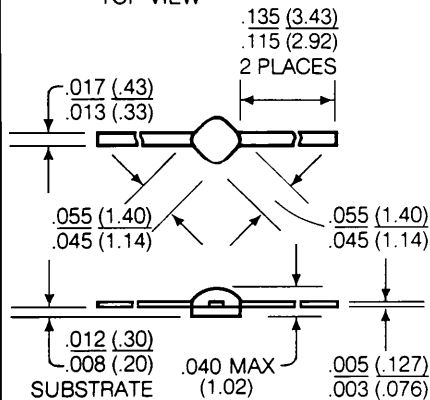


TOP VIEW

STYLE 820



TOP VIEW

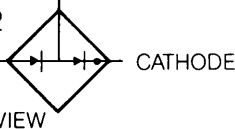


STYLE 821

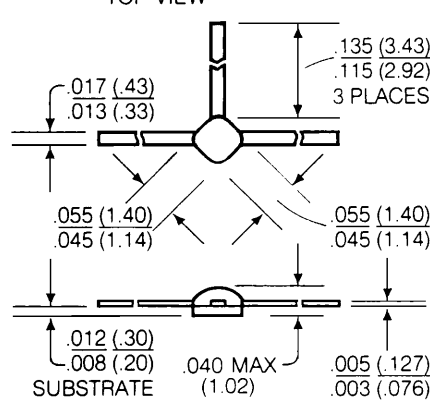


TOP VIEW

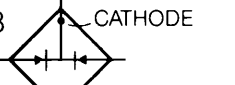
STYLE 822



TOP VIEW

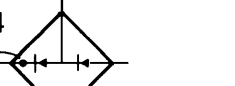


STYLE 823



TOP VIEW

STYLE 824



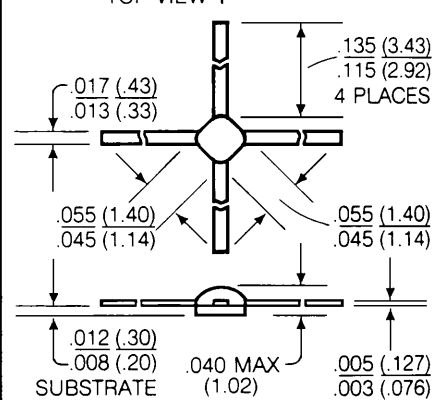
CATHODE

TOP VIEW

STYLE 825



TOP VIEW



STYLE 826

COMMON CATHODE



TOP VIEW

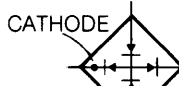
STYLE 827

CATHODE



TOP VIEW

STYLE 828



TOP VIEW

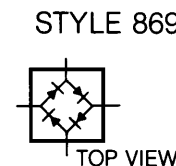
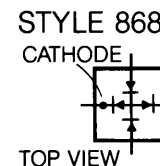
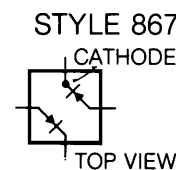
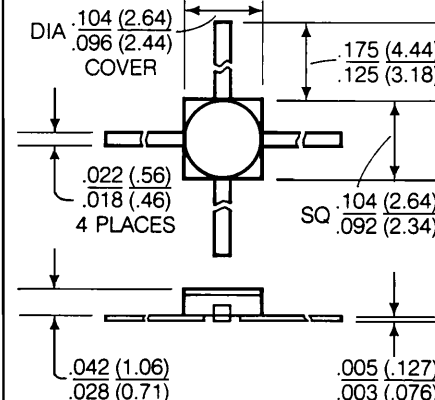
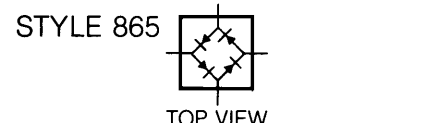
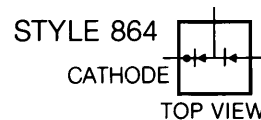
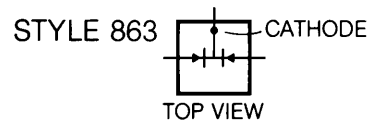
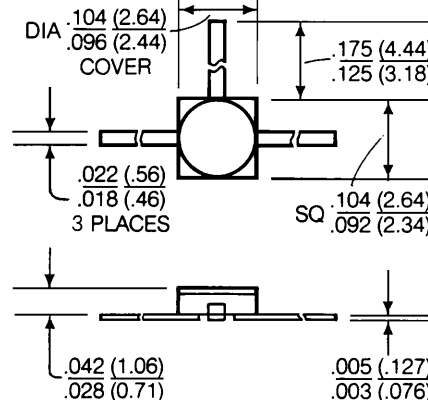
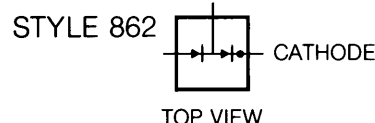
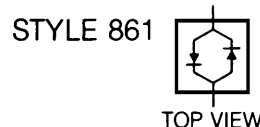
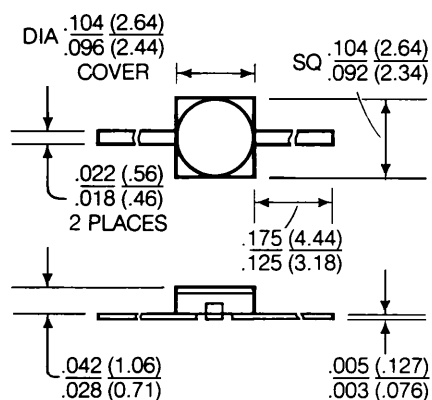
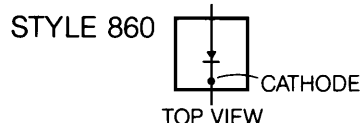
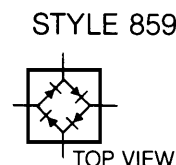
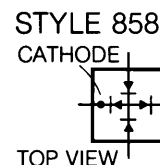
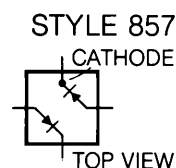
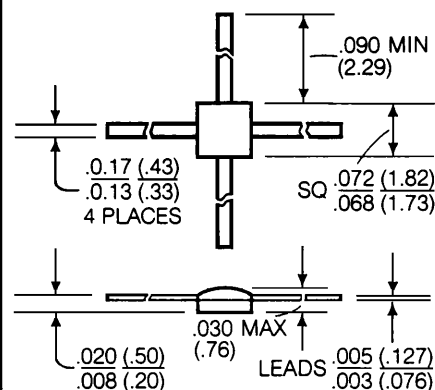
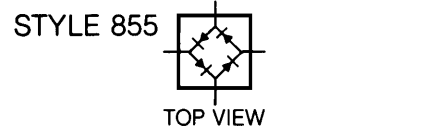
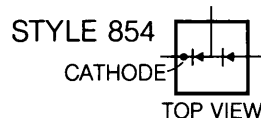
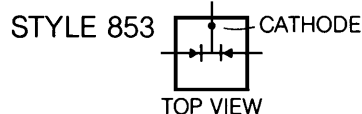
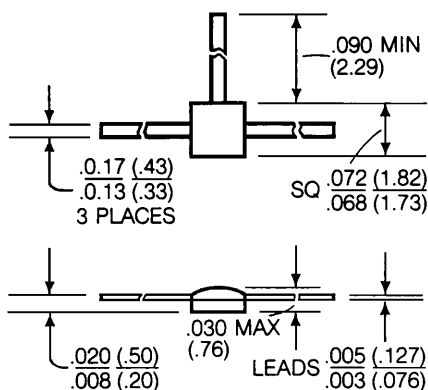
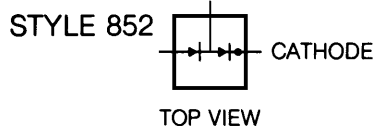
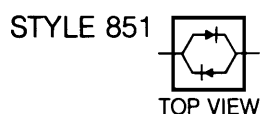
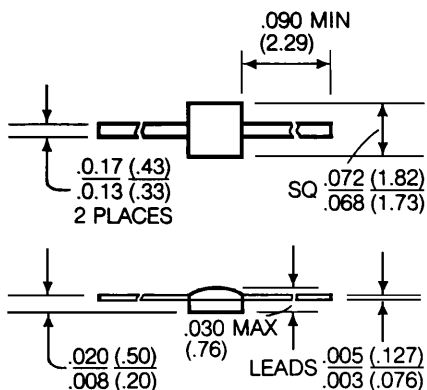
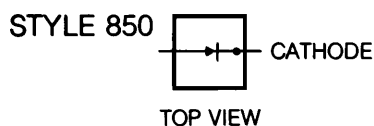
STYLE 829



TOP VIEW

DIMENSIONS ABOVE ARE IN INCHES WITH MILLIMETERS IN PARENTHESES

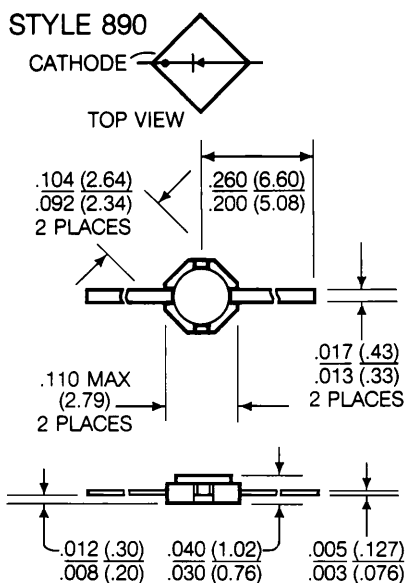
PACKAGE STYLES



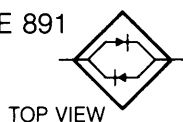
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PACKAGE STYLES

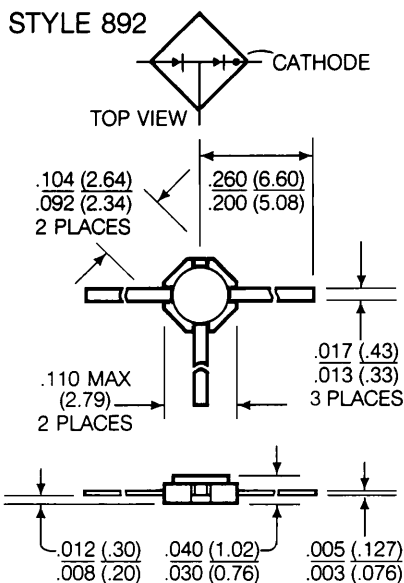
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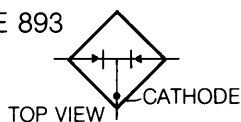
STYLE 891



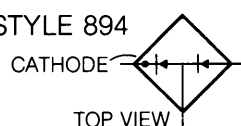
STYLE 892



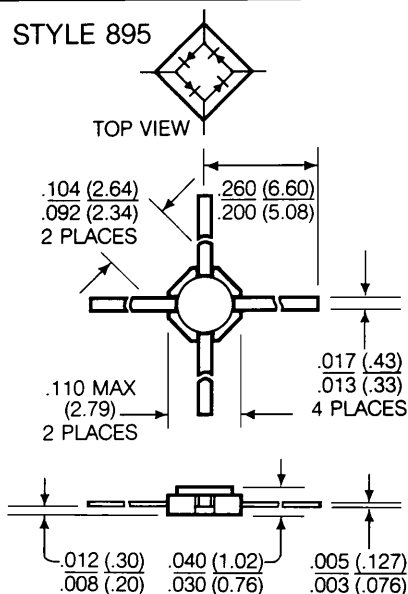
STYLE 893



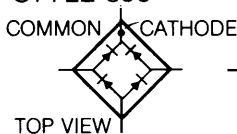
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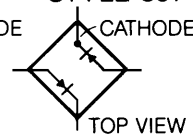
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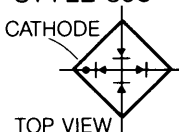
STYLE 896



STYLE 897



STYLE 898



STYLE 899



DIMENSIONS ABOVE ARE IN INCHES WITH MILLIMETERS IN PARENTHESES

NOTES:

1. All of the beam lead devices are also available in chip form.
2. When ordering add the three 3-digit package style suffix, i.e. ABM9001-720 is a medium barrier 6.5dB X-band monolithic ring quad.
3. $\Delta V_F @ 1\text{mA} = 10\text{mV}$ for beam lead pairs
 $\Delta V_F @ 1\text{mA} = 15\text{mV}$ for beam lead ring quads and bridge quads
4. $NF_{IF} = 1.5\text{dB}$; $I_F = 30\text{ MHz}$; $R_L = 100\text{ OHMS}$; L.O. = 1mW (for low and medium barrier types); L.O. = 2.0mW (for high barrier types); S-band = 3060 MHz; X-band = 9375 MHz; $K_{\mu\text{-band}} = 16000\text{ MHz}$.
5. Series resistance, $R_S = R_T - R_B$ where R_T = total resistance measured across the diode; R_B = barrier resistance, which equals 2.8 OHMS for Schottky Barrier Diodes measured at +10mA.
6. C_J , junction capacitance is measured at $V_R = 0$ volts and $f = 1.0\text{ MHz}$.



ADVANCED SEMICONDUCTOR INC.

7525 Ethel Ave. • North Hollywood, CA 91605

1-800-423-2354 (In Calif: 818-982-1202) • Telex: 18-2651 • FAX 818-765-3004