

FEATURES

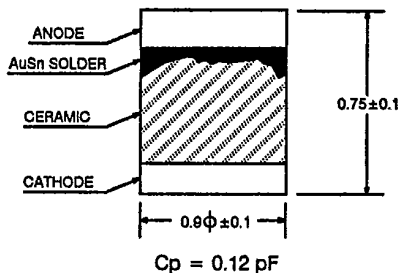
- **LOW CONVERSION LOSS:** $L_o = 7.5$ dB TYP at $f = 20$ GHz to 40 GHz, $P_{IN} = +16$ dBm
- **HIGH CUTOFF FREQUENCY:** $f_c = 300$ GHz TYP
- **LOW THERMAL RESISTANCE:**
 $R_{TH}(\mu-C) = 500^\circ\text{C/W MAX}$
- **SMALL SIZE**
- **HIGH RELIABILITY**

DESCRIPTION

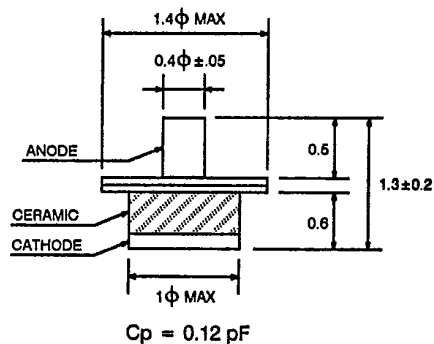
These GaAs Varactor Diodes are especially designed for millimeter wave multiplier applications such as a doubler from 20 GHz to 40 GHz. These diodes feature low conversion loss, high cutoff frequency, low thermal resistance, small size and high reliability. They are available in three package types: 5S, 5M and 5N.

OUTLINE DIMENSIONS (Units in mm)

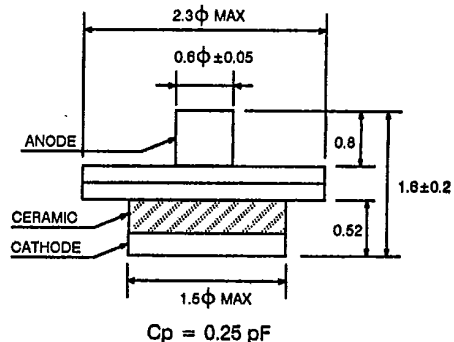
OUTLINE 5S



OUTLINE 5M



OUTLINE 5N



ABSOLUTE MAXIMUM RATINGS (TA = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V _R	Reverse Voltage	V	15
P _D	Power Dissipation	mW	200
T _{OP}	Operating Temperature	°C	-65 to +125
T _{STG}	Storage Temperature	°C	-65 to +125
T _{SDR}	Soldering Temperature	°C	+230*

*One time within 10 seconds.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
V_R	Reverse Voltage at $I_R = 10 \mu\text{A}$	V	15		
I_R	Reverse Current at $V_R = +11 \text{ V}$	nA			10
V_F	Forward Voltage at $I_F = 10 \text{ mA}$	V			1.3
C_{j0}	Junction Capacitance at $V_R = 0 \text{ V}$, $f = 1 \text{ MHz}$	pF	0.15	0.20	0.25
$R_{\text{TH}}(J-C)$	Thermal Resistance: Small Signal Method $I_{OP} = 5 \text{ mA}$ $f(\text{high}) = 5 \text{ MHz}$, $f(\text{low}) = 30 \text{ Hz}$	$^\circ\text{C/W}$			500
f_{c0}	Cutoff Frequency* at $V_R = 0 \text{ V}$, $f = 20 \text{ GHz}$	GHz	90	110	
f_{c-4}	Cutoff Frequency* at $V_R = 4 \text{ V}$, $f = 20 \text{ GHz}$	GHz	260	300	
L_c	Conversion Loss as a doubler, $f_{in} = 20 \text{ GHz}$, at $P_{in} = +16 \text{ dBm}$	dB		7.5	

*Sampling basis of LTPD 10% ($n = 22$, accept; 0 reject; 1)