

BEAM LEAD DIODES

**GaAs Schottky
Barrier
Mixer Diodes
DC1300 Series**

- High cut-off frequency
- Low noise figure
- Low total capacitance
- Robust construction

MARCONI CKT TECHNOLOGY

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BEAM LEAD DIODES

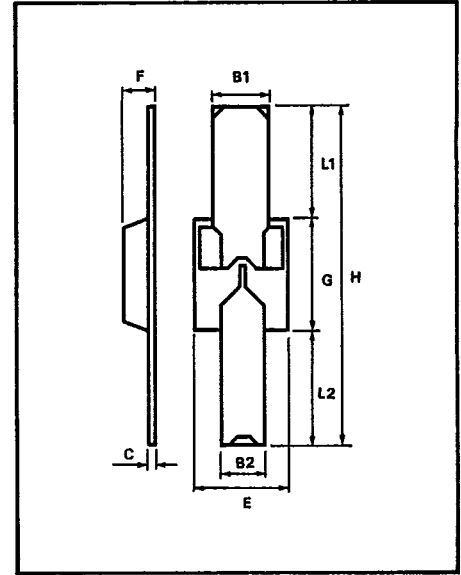
LIMITING CONDITIONS OF USE		
Operating temperature range (All types)	-55 to + 150°C	
Storage temperature range (All types)	-55 to + 150°C	
Burn-out level at $T_{amb} = 25^{\circ}\text{C}$	DC1306 DC1338/9 DC1346	400mW peak 250mW peak 60mW C.W.

D.C. TEST SPECIFICATION at $T_{amb} = 25^{\circ}\text{C}$						
Type number		DC1306	DC1338	DC1339	DC1346	Test conditions
Outline		104	107	107	107	See page 7
Reverse voltage V_R (V)	Minimum	2.0	2.0	2.0	2.0	$I_F = 10\mu\text{A}$
Forward voltage V_F (mV)	Typical	720	720	720	720	$I_F = 2 - 5\text{mA}$
Slope resistance R_S (Ω)	Typical	4.0	4.0	5.0	6.0	$I_F = 10 - 20\text{mA}$
Total capacitance C_T (pF)	Maximum	—	0.090	0.065	0.040	V bias = 0V V signal = 20mV RMS f = 1MHz
	Typical	0.100	0.075	0.055	0.030	
Ideality factor N	Typical	1.2	1.2	1.2	1.2	$I_F = 10 - 100\mu\text{A}$
Tension test T_N (grams)	Minimum	2.0	2.0	2.0	2.0	Pull-off test on bonded diode
	Typical	5.0	5.0	5.0	5.0	

RF TEST CHARACTERISTICS at $T_{amb} = 25^{\circ}\text{C}$						
Type number		DC1306	DC1338	DC1339	DC1346	Test conditions
Test frequency f (GHz)		16.5	35.0	35.0	90.0	
Overall NF (dB) ★	Maximum	7.0	9.0	9.0	—	IF AMPNF = 1.5dB at 30MHz $R_L = 15\Omega$
	Typical	6.5	8.5	8.5	8.0	
Conversion loss L_c (dB)	Typical	5.0	7.0	7.0	6.5	$R_L = 15\Omega$
Rectified current I_{rect} (mA)	Minimum	1.4	1.0	1.0	—	$R_L = 15\Omega$
	Typical	1.6	2.0	2.0	2.5	
VSWR	Typical	2.0:1	—	—	1.2:1	$R_L = 15\Omega$
Test conditions	Typical	350	160	160	100	
IF Impedance		1.8mV P_{in}	4mW P_{in}	4mW P_{in}	2mW P_{in}	$R_L = 15\Omega$
Z_{IF} (Ω)		1.5mA rect.	1mA rect.	1 mA rect.	0.5V bias.	IF = 1KHz

★ Noise figures are measured in a 50 Ω non optimised line.

OUTLINES Dimensions in mm (inches)						
	104		107		115	
	Min.	Max.	Min.	Max.	Min.	Max.
B1	0.13 (0.005)	0.19 (0.007)	0.08 (0.003)	0.19 (0.007)	0.08 (0.003)	0.14 (0.006)
B2	0.08 (0.003)	0.14 (0.006)	0.08 (0.003)	0.14 (0.006)	0.08 (0.003)	0.14 (0.006)
C	0.003 (0.0001)	0.01 (0.0004)	0.003 (0.0001)	0.01 (0.0004)	0.003 (0.0001)	0.015 (0.0006)
E	0.24 (0.009)	0.34 (0.013)	0.24 (0.009)	0.34 (0.013)	0.21 (0.008)	0.12 (0.30)
F	0.02 (0.001)	0.10 (0.004)	0.01 (0.0004)	0.10 (0.004)	0.01 (0.0004)	0.10 (0.004)
G	0.27 (0.011)	0.40 (0.016)	0.26 (0.010)	0.40 (0.016)	0.21 (0.008)	0.30 (0.012)
H	0.82 (0.032)	0.88 (0.035)	0.78 (0.031)	0.88 (0.035)	0.65 (0.026)	0.71 (0.028)
L1	0.27 (0.011)	0.31 (0.012)	0.27 (0.011)	0.36 (0.014)	0.18 (0.007)	0.25 (0.010)
L2	0.20 (0.008)	0.30 (0.012)	0.20 (0.008)	0.30 (0.012)	0.18 (0.007)	0.25 (0.010)



OUTLINES Dimensions in mm (inches)				
	116		118	
	Min.	Max.	Min.	Max.
B	0.13 (0.005)	0.19 (0.007)	0.13 (0.005)	0.19 (0.007)
C	0.003 (0.0001)	0.01 (0.0004)	—	0.010 (0.0004)
E	0.48 (0.019)	0.56 (0.022)	0.48 (0.019)	0.56 (0.022)
F	0.01 (0.0004)	0.10 (0.004)	—	0.10 (0.004)
G	0.48 (0.019)	0.56 (0.022)	0.48 (0.019)	0.56 (0.022)
H	1.28 (0.050)	1.34 (0.053)	1.78 (0.070)	1.84 (0.072)
L	0.38 (0.015)	0.42 (0.017)	0.63 (0.025)	0.67 (0.026)

