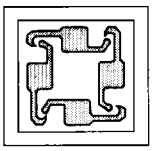
NEW

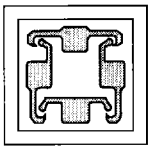
Alpha Silicon Beamless Schottky Diodes

P/N DME, DMF, DMJ Series

Features

- For Microwave MIC Assembly & Automated High Volume Manufacturing Lines
- Mechanically Rugged Design
- Three Barrier Heights for Optimized Mixer Performance
- Wide Product Range Series Pair, Ring, Bridge, and 8 Diode Ring





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Description

The Beamless Diode family is designed for a high degree of device reliability in both commercial and industrial uses. They are designed to offer the utmost in performance as well as achieving price sensitive cost targets for commercial systems.

- Use in ring or crossover designs in double balanced mixer designs
- Virtually any Lo requirement can be met with choice of barrier height.
- 100% DC tested on wafer.
- Available in film frame or gel pak.

Electrical Specifications

Part Number	Band	Drive Level	V_F I_F = 1.0 mA (mV)		(B) V_F I_F = 1.0 mA (mV)	C_J V_R = 0V, f = 1 MHz (pF)		R_T I_F = 10 mA (Ohms)	Outline Drawing Number
			min	max		min	max		
Ring Quad									
DMF3926	S	Low	220	290	10	0.3	0.5	8.0	551-002
DME3927	S	Medium	300	400	10	0.3	0.5	8.0	551-002
DMJ3928	S	High	525	625	10	0.3	0.5	8.0	551-002
Bridge Quad									
DMF3929	S	Low	220	290	10	0.3	0.5	8.0	551-004
DME3930	S	Medium	300	400	10	0.3	0.5	8.0	551-004
DMJ3931	S	High	525	625	10	0.3	0.5	8.0	551-004

Electrical Specifications (Continued)

Part Number	Band	Drive Level	V_F I_F = 1.0 mA (mV)		(B) V_F I_F = 1.0 mA (mV)	C_J V_R = 0V, f = 1 MHz (pF)		R_T I_F = 10 mA (Ohms)	Outline Drawing Number
			min	max		min	max		
Series Pair									
DMF3932	S	Low	220	290	10	0.3	0.5	8.0	551–012
DME3933	S	Medium	300	400	10	0.3	0.5	8.0	551–012
DMJ39334	S	High	525	625	10	0.3	0.5	8.0	551–012
Back to Back Ring Series Pair									
DMF3935	S	Low	220	290	10	0.3	0.5	8.0	551–056
DME3936	S	Medium	300	400	10	0.3	0.5	8.0	551–056
DMJ3937	S	High	525	625	10	0.3	0.5	8.0	551–056
OctoQuad Ring									
DMF3938	S	Low	440	580	20	0.1	0.5	16	551–020
DME3939	S	Medium	600	800	20	0.1	0.5	16	551–020
DMJ3940	S	High	1050	1250	20	0.1	0.5	16	551–020
Matching Criteria:	(B) VF @ 10 mA 15 mV (B) C_j 0V, 1 mHz 0.08 pF								

Maximum Ratings

Tstg:	–65°/+175°C
Top:	–65°/+150°C
Pdiss CW:	75 mW/junction
I max:	50 mA
PIV:	2.0 – 3.0 at 10 μA

Packing Methods

1. Vacuum release gel–pack.
2. Wafer on film frame (rejects are marked with ink).
   - diced, ready for pick and place
   - unsawn whole wafer, 7 mil thick, max.

Assembly and Handling Procedure

The process flow for assembly is:

1. die attach using non conductive epoxy
2. wire bond
3. encapsulation – non conductive epoxy

Die Attach Methods

All leadless chips are compatible with both eutectic and conductive epoxy die attach methods. Eutectic processes use Sn–Au or Sn–Pb solder. Non conductive die attach is recommended.

Wire Bonding

Two methods can be used to connect wire, ribbon, or wire mesh to the chips:

- Thermocompression
- Ballbonding

Alpha recommends use of pure gold wire.

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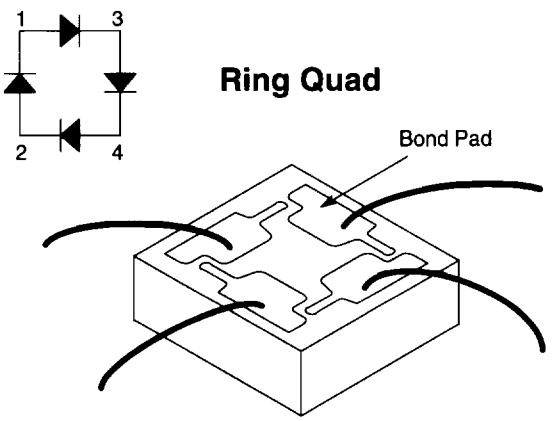
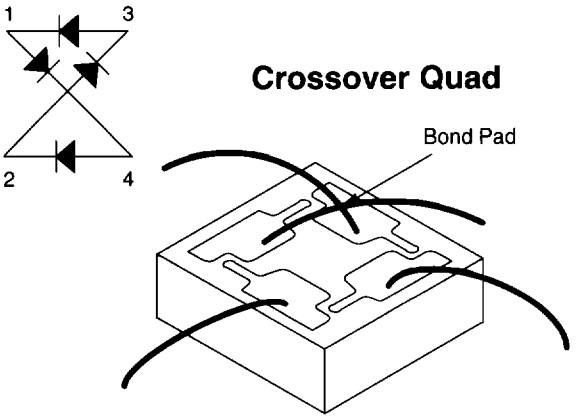
Typical Bonding Configuration



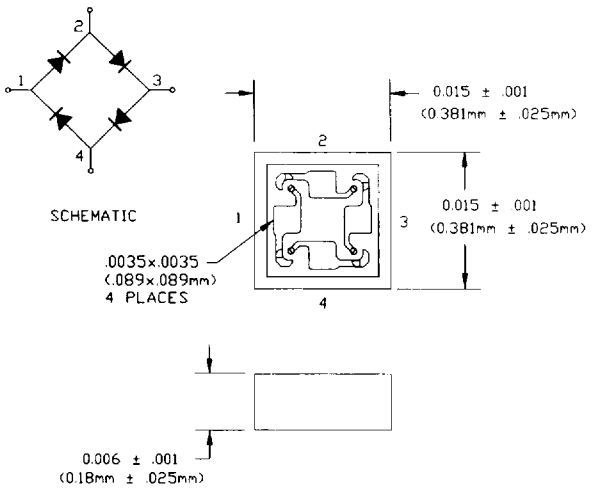


Spice Parameters (Per Junction and Barrier Height)

Part Number Prefix	I_S A	R_S Ohm	N	T_D S	C_J pF	M	E_G eV	V_D eV	X_J1	F_C	B_V	I_{BV} A
DMF	2.5E–7	4	1.04	1.E–11	0.42	0.32	0.69	0.51	2	0.5	2	1E–5
DME	1.3E–9	4	1.04	1.E–11	0.39	0.37	0.69	0.65	2	0.5	3	1E–5
DMJ	9E–13	4	1.04	1.E–11	0.39	0.42	0.69	0.84	2	0.5	3	1E–5

Outline Drawings

–002



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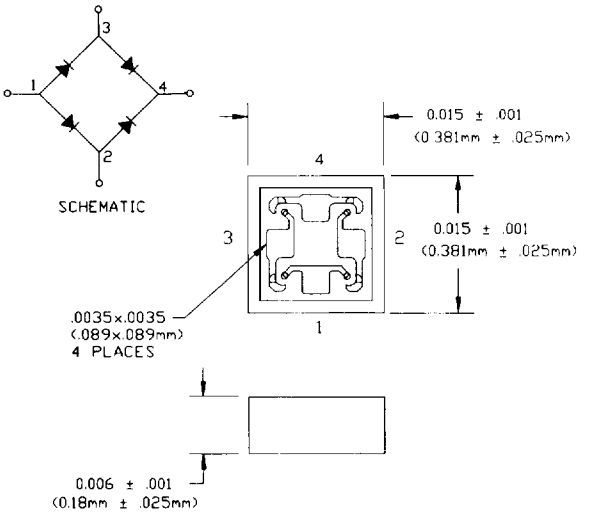

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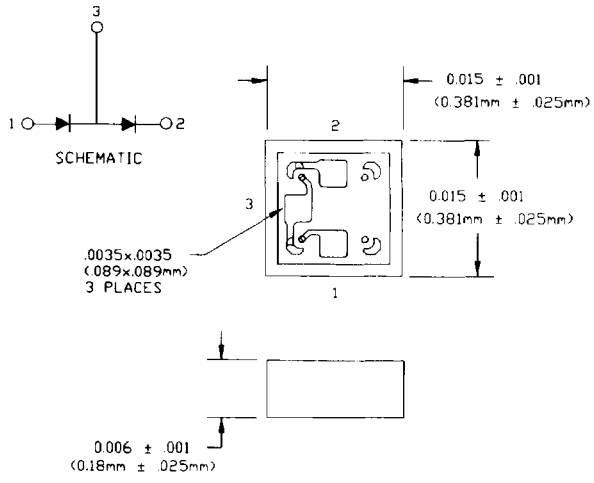
Outline Drawings

–012



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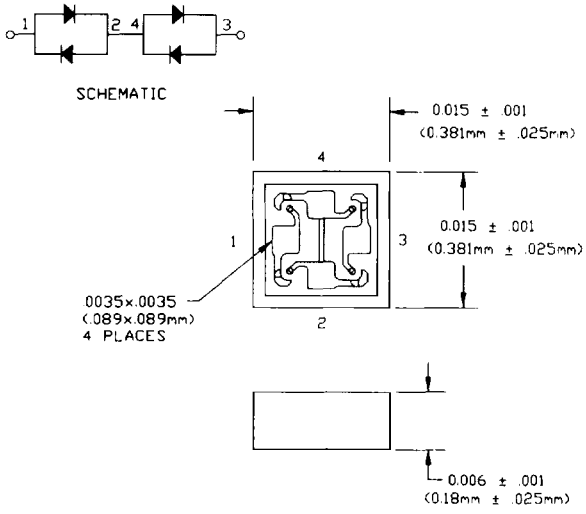

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