

BELLMAT™

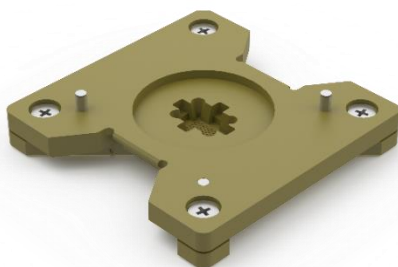
TEST CONTACTING SOLUTION (PATENT NO. 10,488,439)
FOR 5G / MMWAVE DEVICE TESTING



Bellmat family of high-performance contacting technology was developed and validated for initial lab characterization through high-volume production test environments. The proprietary contacting technology is a unique combination of both rigid and cantilever style contacting that provides a very short, “straight-thru” signal path with excellent signal integrity (- 1dB @ 63GHz).

The “micro-wipe” function on the contact tip provides consistent contact resistance values and the flexible design provides simple and quick maintenance sequences through its “cartridge form” spares module or alternatively, replacement of individual contact and elastomeric elements if desired. In short, Bellmat is designed for maximum flexibility and cost effectiveness.

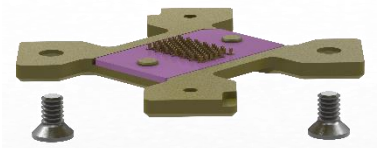
Key Features	Bellmat Technology Delivers
Springless Design	High frequency response, Controlled inductance / impedance, Application friendly
Rigid Body Contact	Low temperature impact, Insurance of contact, Streamline relay, High signal integrity and bandwidth
Unique Housing Construction	Rigid embodiment, Performance consistency
Honey Comb Elastomer Design	Controlled force distribution, Disposable cartridge
Advanced Contact Finishing - ACF⁺	Low to High frequency applications. Longer MTBA & MTBF, Sustainability of specification
Oxide Layer Breaker Tip Design	Low resistance barrier, Less cleaning frequency, Longer MTBA & MTBR



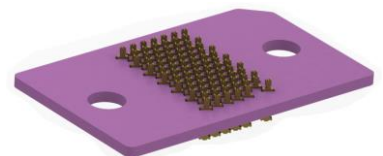
Top View



Exploded view of socket



Cartridge with reusable carrier plate
=
Pre-installed pins and elastomer on Carrier plate



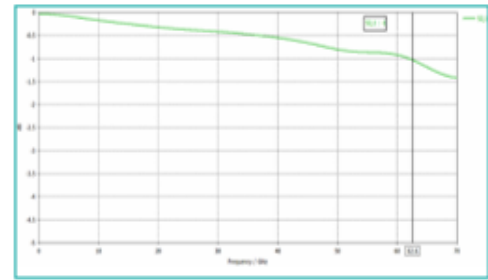
Cartridge without carrier plate

Package Range : **µBGA/WLCSP, FBGA, LGA, DRQFN**
Pitch : **≥ 0.3mm**

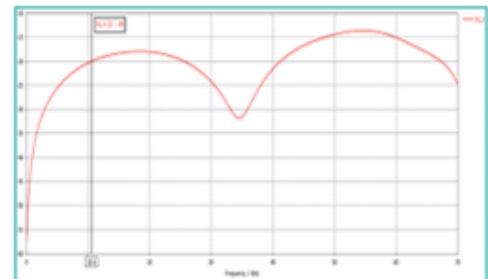
Mechanical Specifications	Bellmat *
Pin Uncompressed Height (mm)	1.75
Pin Compliance (mm)	0.15
Force (grams)	15 ~ 25
Wiping Length (mm)	N/A
Number of Insertion - Housing	> 1M
Number of Insertion – Pin	150k ~ 300k
Operating Temperature (°C)	- 40 to 150
Socket/Module Material	Torlon® 5030 or equivalent
Pin Material	Special Alloy
Plating	Gold-Plated

Electrical Specifications ^①	Bellmat *	
Inductance	Self (nH)	0.65
	Mutual (nH)	0.35
Capacitance	Ground (pF)	0.074
	Mutual (pF)	0.046
S21 (Insertion Loss / Bandwidth)	- 1dB @ 63GHz	
S11 (Return Loss / Bandwidth)	- 20dB @ 10GHz	
S41 (Crosstalk / Bandwidth)	- 20dB @ 18GHz	
Contact Resistance (mΩ)	≤ 100.0	
Current Carrying Capacity (A)	1.5 ~ 2.0	
Current Leakage (pA) @ 10V	≤ 1.0	
Peak Current (A@1ms)	N/A	

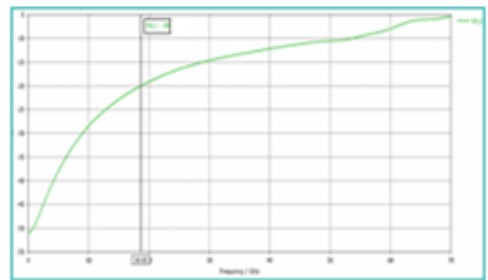
Bellmat Performance



S₂₁ Insertion Loss^②



S₁₁ Return Loss^②



S₄₁ Crosstalk^②

Targeted Applications



Memory Devices



Precision Analog & Sensors

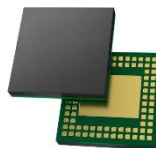
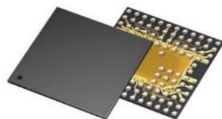
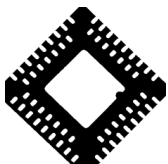


Mobility



RF Applications

Package Range



BGA / WLCSP, FBGA, LGA

- ① Based on Bellmat with 0.30mm pitch
 ② Simulated Results

Note * : The stated specifications are based on JF Microtechnology's Laboratory Test; the results may vary subjected to the test environment conditions. Information furnished by JF Microtechnology is believed to be accurate and reliable. However, no responsibility is assumed by JF Microtechnology for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of JF Microtechnology. Trademarks and registered trademarks are the property of their respective owners.

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