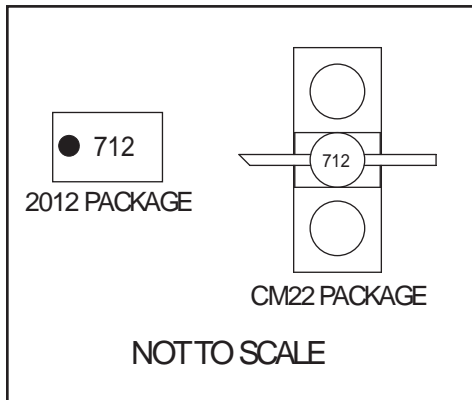


MMA712

DC to 12 GHz Amplifier



Description:

The MMA712 is a fully matched Darlington Amplifier, constructed with reliable InGaP-GaAs HBT technology. Exhibits extremely flat gain response over the operating band.

Features:

- DC - 12 GHz Broadband Gain Block.
- Flat gain over bandwidth +/- 1 dB.
- 50 Ohm match Input/Output

RF Specifications ($T_A = +25\text{ }^\circ\text{C}$):

| Parameter | Minimum | Typical | Maximum | Units | Test Conditions |
|-------------------|---------|---------|---------|------------------|---|
| Frequency Range | DC | --- | 12 | GHz | CM22 Package |
| | DC | --- | 11 | GHz | 2012 Package |
| Gain | 11 | 12 | 14 | dB | |
| VSWR | --- | 1.50:1 | 2.40:1 | --- | Input/Output |
| Power Output | +10 | +11 | --- | dBm | P-1 dBGCP |
| OIP3 | +16 | +23 | +25 | dBm | |
| Noise Figure | --- | 5.5 | 6.5 | dB | |
| DC Supply current | 42 | 48 | 55 | mA | $V_s = 6.00\text{ V}$, $R_{bias} = 22\text{ }\Omega$ |
| Temperature Range | -40 | --- | +85 | $^\circ\text{C}$ | |

- NOTES:
1. $V_s = 6.00\text{ Vdc}$, $R_{bias} = 22\text{ }\Omega$
 2. IMD testing with a frequency separation of 1.22 MHz and an output power of 0 dBm/tone

Absolute Maximum Ratings:

| Parameters | Rating |
|----------------------------|------------------------------|
| DC voltage (V_{cc}) | +5.20 V |
| RF Input Power, continuous | +10 dBm |
| Operating Temperature | -40 to +85 $^\circ\text{C}$ |
| Storage Temperature | -55 to +125 $^\circ\text{C}$ |



Revision Date: 6/6/04

RF Performance, CM22 Package:

Figure 1.

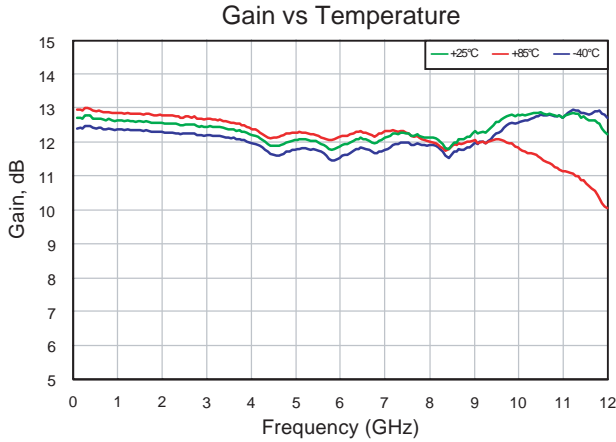


Figure 2.

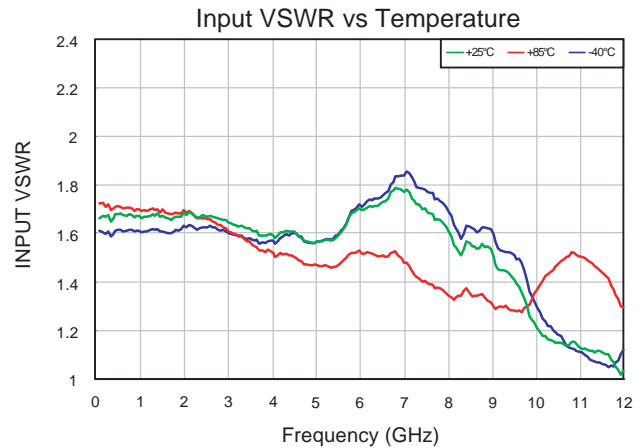


Figure 3.

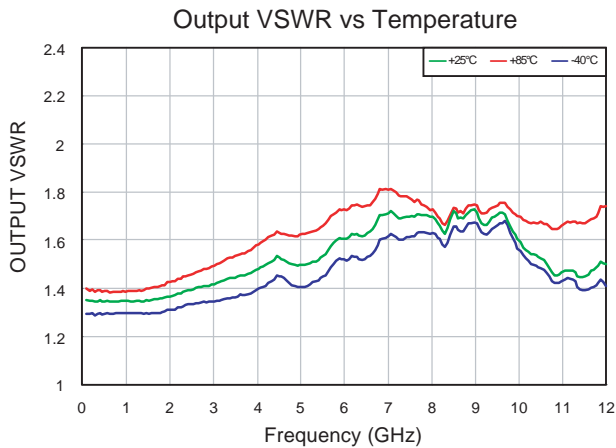


Figure 4.

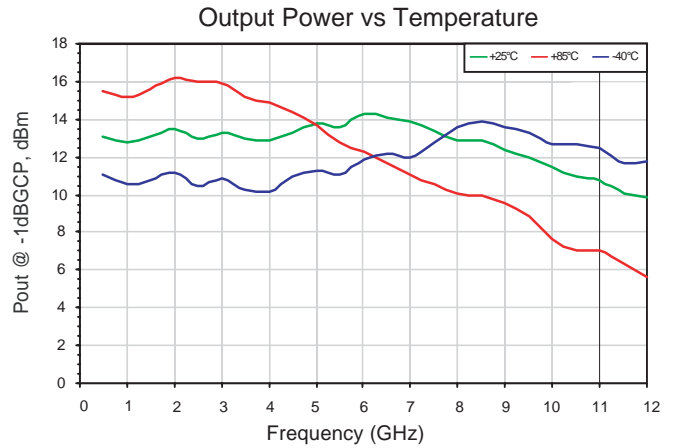


Figure 5.

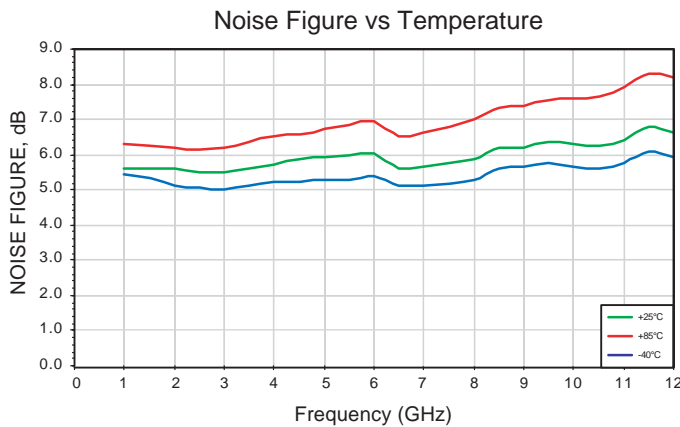
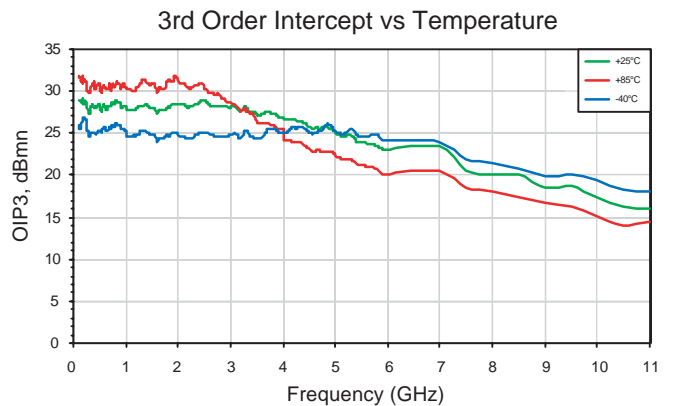


Figure 5.



MMA712 DC to 12 GHz Amplifier



RF Performance, 2012 Package:

Figure 7.

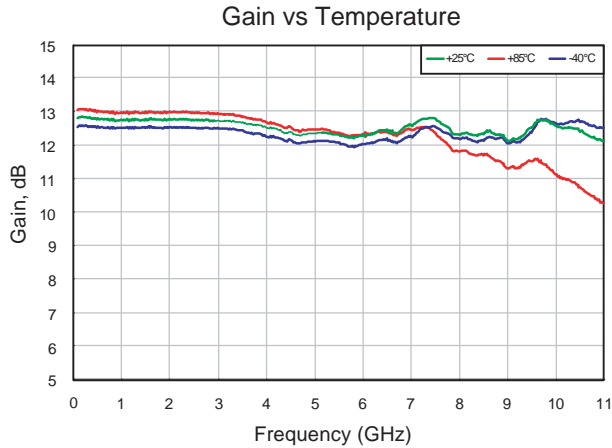


Figure 8.

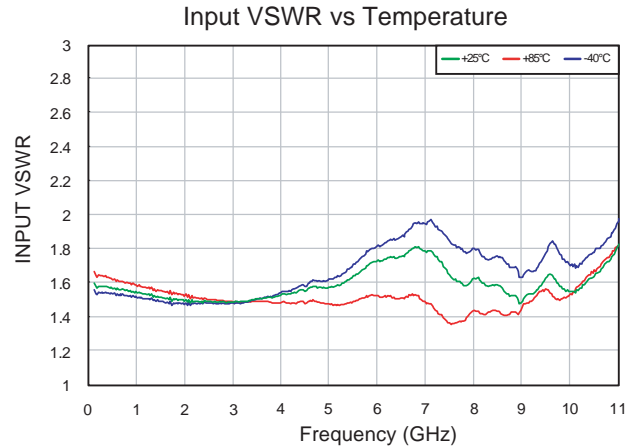


Figure 9.

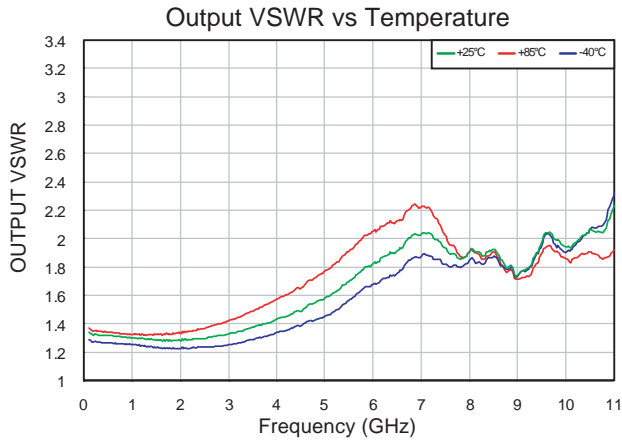


Figure 10.

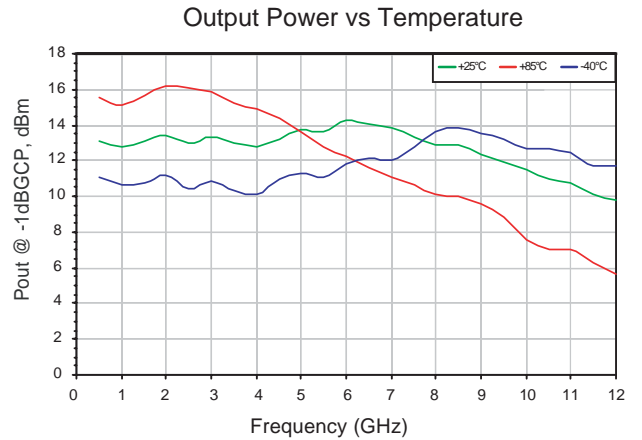


Figure 11.

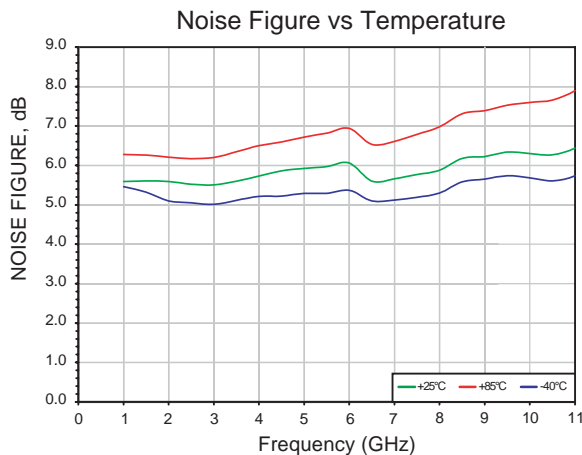
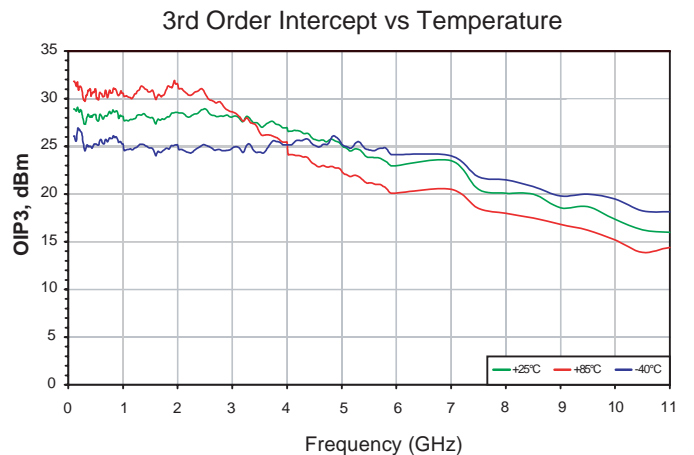
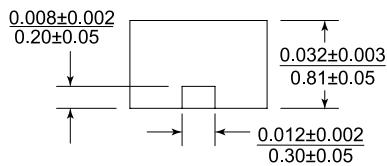
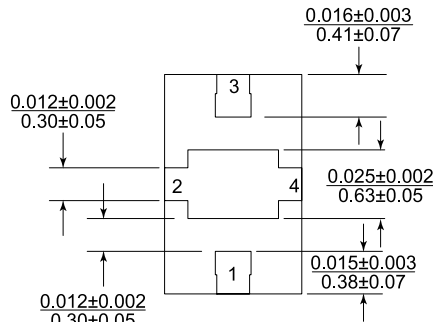
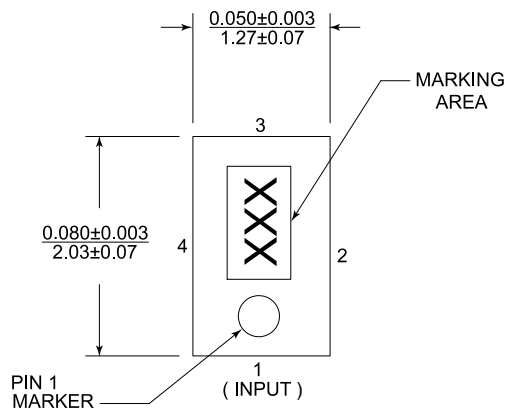


Figure 12.



2012 Package Dimensions:



PIN FUNCTION

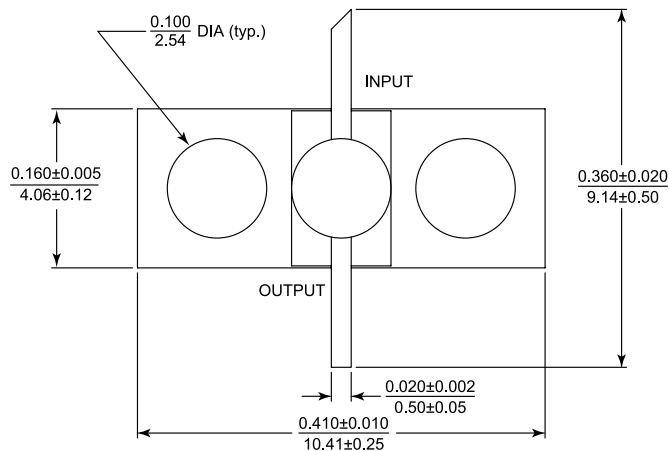
- 1 INPUT
- 2 RF AND DC GROUND
- 3 OUTPUT
- 4 RF AND DC GROUND

ALL DIMENSIONS +/- 0.001 INCH

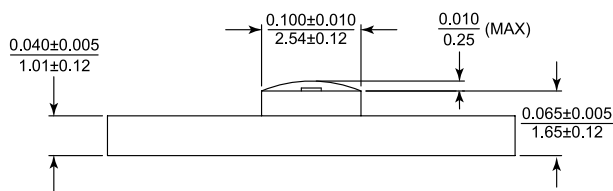
INCH
MM

Lead Finish is Pd/Ni (Pd = 0.020-0.150 μm, Ni = 0.5-2.0 μm)

CM22 Package Dimensions:



INCH
MM



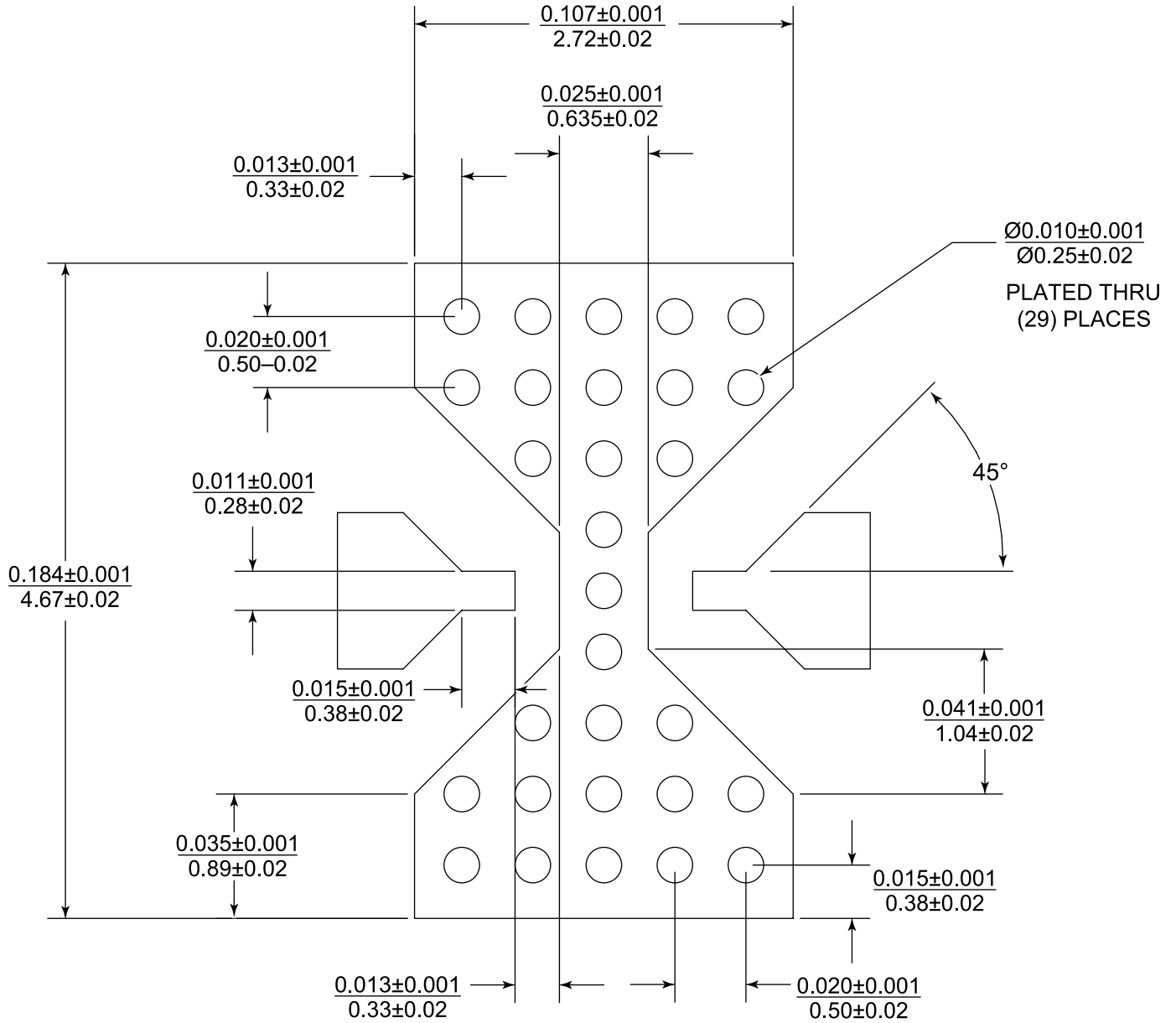
0.003±0.002
0.07±0.05

ALL DIMENSIONS +/- 0.003 INCH

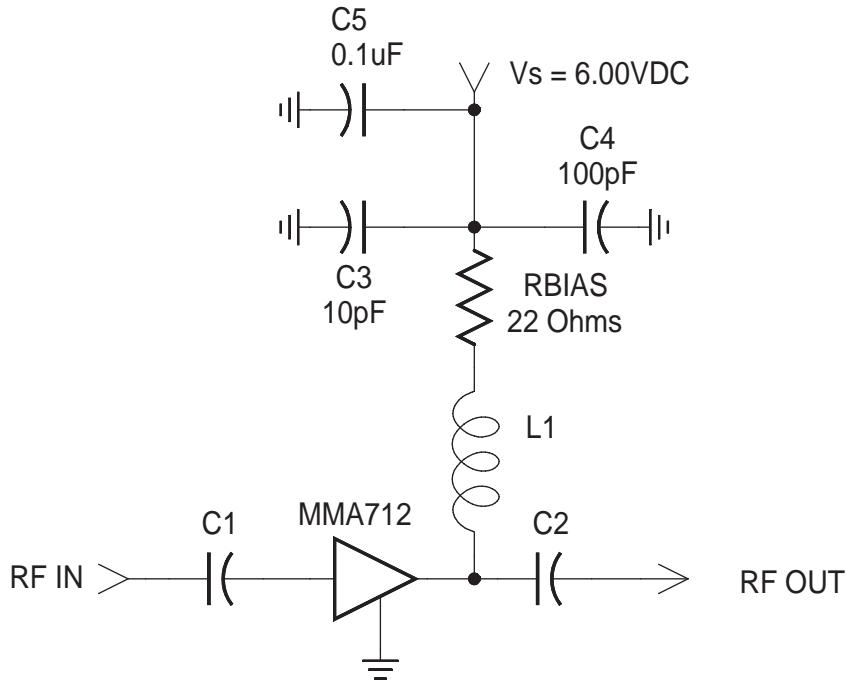
MMA712 DC to 12 GHz Amplifier



2012 Footprint:



Application Circuit:



C1, C2, L1: Set by lowest operating frequency.

Bias Resistor Value vs Supply Voltage:

| | | | | | |
|-----------------------|------|------|-------|-------|-------|
| Vs (V) | 6.00 | 8.00 | 10.00 | 12.00 | 15.00 |
| Rbias (Ω) | 22 | 43 | 86 | 130 | 200 |
| Power Dissipation (W) | 0.10 | 0.2 | 0.5 | 1 | 2 |

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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.