

4 GHz to 30 GHz Absorptive Voltage Variable Attenuator, 30 dB, Field Replaceable 2.92mm

The FMAT2005 is an Absorptive Analog Voltage Variable Attenuator module that operates across a wide frequency range from 4 GHz to 30 GHz and supports a single voltage control of -5V to 0V with 5 mA of DC Current. The 50 ohm circuit design uses series-shunt reflective topology and offers an attenuation range from 0 to 30 dB typ across the full frequency band. Impressive typical performance includes 4 dB insertion loss, a P0.1 dB compression point of +25 dBm, input IP3 of 28 dBm, and a maximum RF input power level of +30 dBm. The low profile miniature pin package is aluminum with gold plating and supports field replaceable 2.92mm RF connectors and solder pins for DC control. With the connectors removed, the package can be drop mounted onto a PWB. The module has an operational temperature range from -40°C to +85°C and is guaranteed to meet a series of environmental test conditions for Altitude, Vibration, Humidity, and Shock.

Electrical Specifications (Values at +25°C, sea level)

Description	Min	Typ	Max	Unit
Frequency Range	4		30	GHz
Attenuation Range		30		dB
Insertion Loss		4	5	dB
VSWR		1.8:1	2.2:1	
RF Input Power		+30	+30	dBm
Input at 0.1 dB Compression Point		+25		dBm
Switching Speed			500	us
Control Voltage		-5 to 0		Volts
DC Current		5		mA
Impedance		50		Ohms
Input IP3		28		dBm
IL Temperature Coefficient		0.05		dB/deg C

Absolute Maximum Rating

Parameter	Rating
Control Voltage	-5V ~ +1V
RF Input power	+30dBm



ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in approved ESD Workstation.

Mechanical Specifications

Size	
Length	0.71 in [18.03 mm]
Width	0.37 in [9.4 mm]
Height	0.67 in [17.02 mm]
Weight	0.002 lbs [0.91 g]
Input Connector	Field Replaceable 2.92mm Female
Output Connector	Field Replaceable 2.92mm Female



Features:

- Absorptive Voltage Controlled Attenuator
- 4 GHz to 30 GHz
- Attenuation Range 0 to 30 dB typ
- Insertion Loss 4 dB typ
- P0.1 dB Compression Power +25 dBm typ
- Input IP3 28 dBm typ
- Max RF Input Power +30 dBm
- Switching Speed 500 usec typ
- Control Voltage -5V to 0V
- 50 Ohm Circuit Design uses Series-Shunt Topology
- Field Replaceable 2.92mm Female RF Connectors
- Solder Pins for DC Control
- Operational Temperature Range -40°C to +85°C
- Rugged and Compact Aluminum Gold Plated Package Design
- Guaranteed Environmental Test Conditions Altitude, Vibration, Humidity, Shock
- Single Control Operation

Applications:

- Test & Measurement
- Military and Commercial Communications
- Military Electronic Systems
- Research & Development

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Power and Control

Solder Pin

Environmental Specifications

Temperature

Operating Range

-40 to +85 deg C

Storage Range

-50 to +105 deg C

Humidity

100% RH at 35°C, 95% RH at 40°C

Shock

20G for 11 msec half sine wave, 3 axis both directions

Vibration

25g RMS (15 degrees 2KHz) endurance, 1 hour per axis

Altitude

30,000 Feet

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

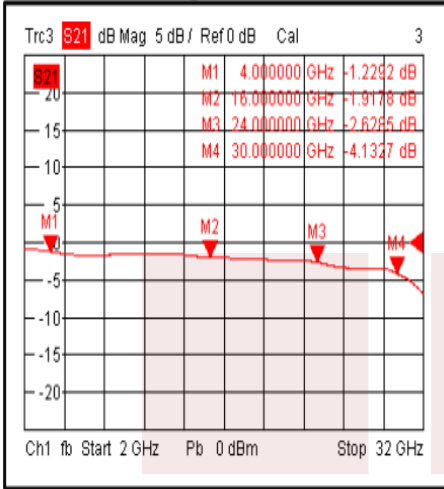
Notes:

- Values at 25 °C, sea level

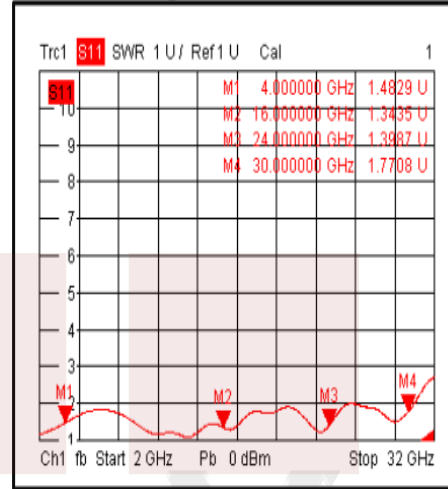


Typical Performance Data

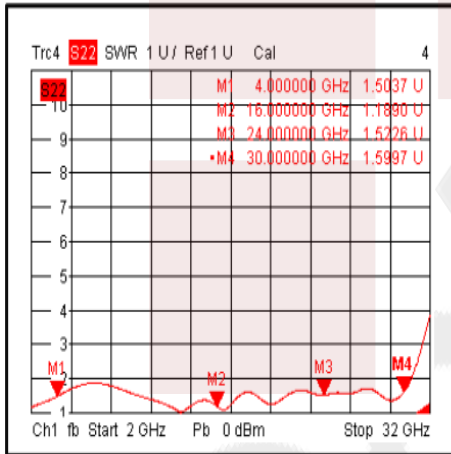
Insertion Loss @+25°C



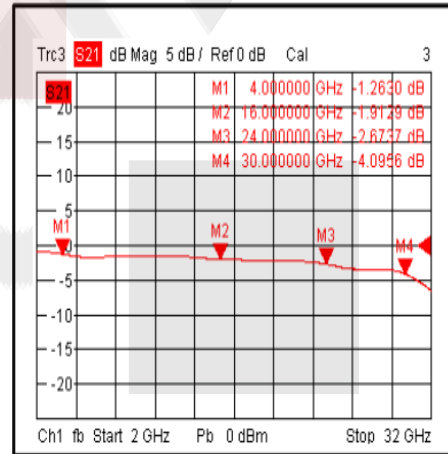
Input VSWR @+25°C



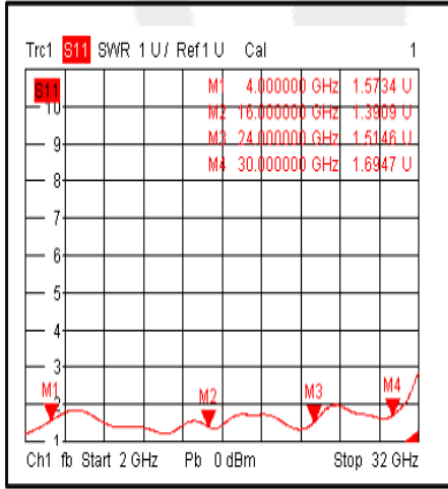
Output VSWR @+25°C



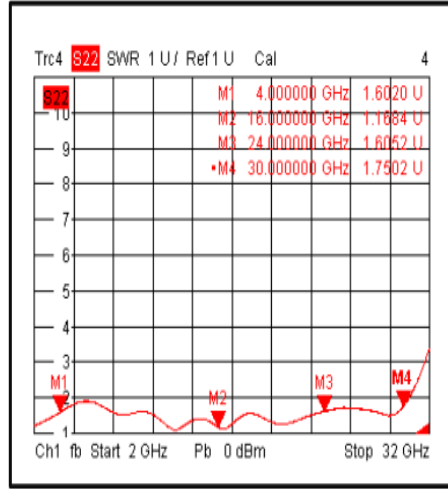
Insertion Loss @-40°C



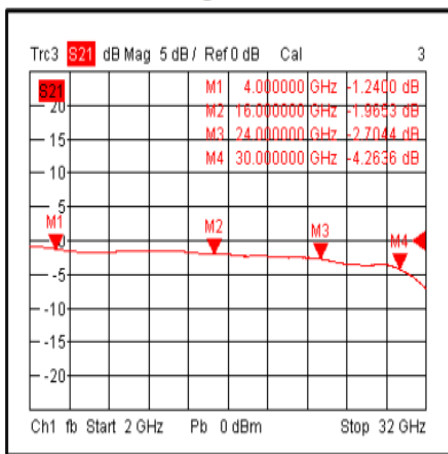
Input VSWR @-40°C



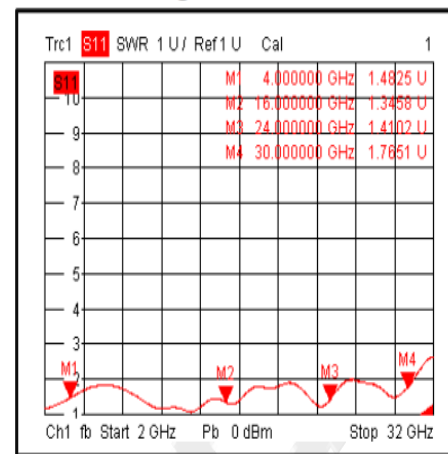
Output VSWR @-40°C



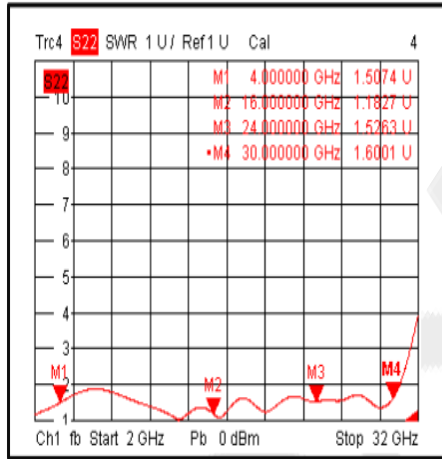
Insertion Loss @+85°C



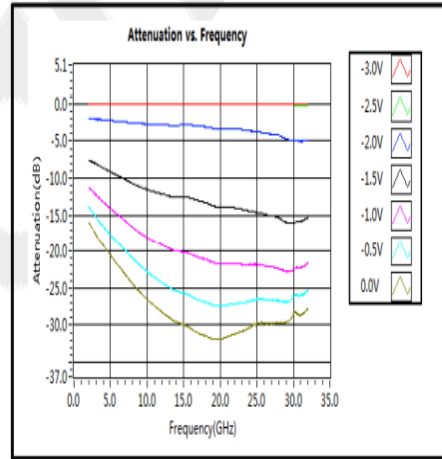
Input VSWR @+85°C



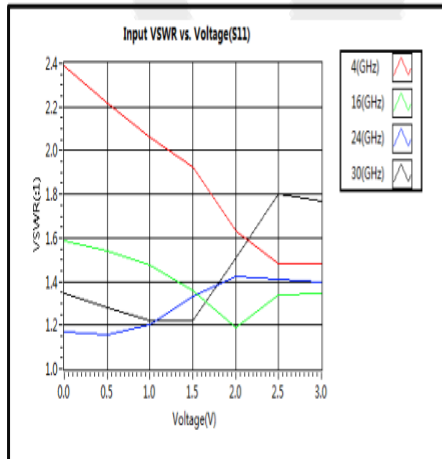
Output VSWR @+85°C



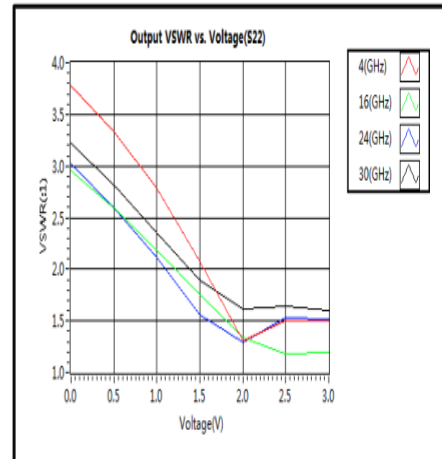
Attenuation vs. Frequency



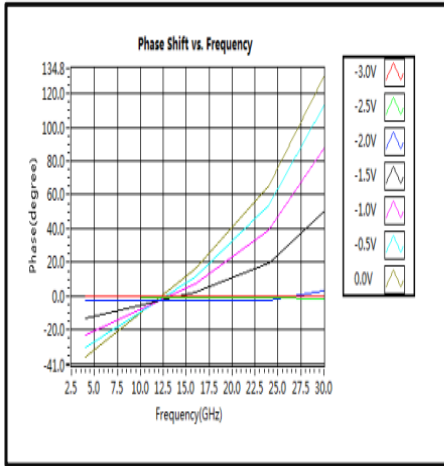
VSWR vs. Voltage (S11)



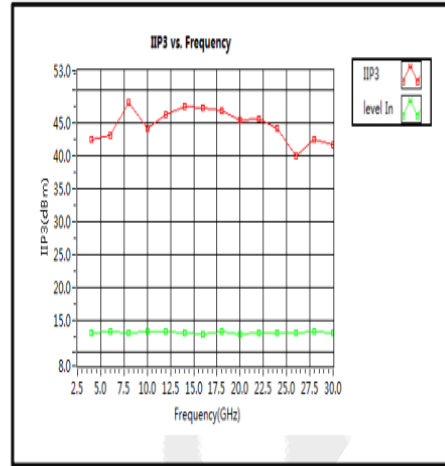
VSWR vs. Voltage (S22)



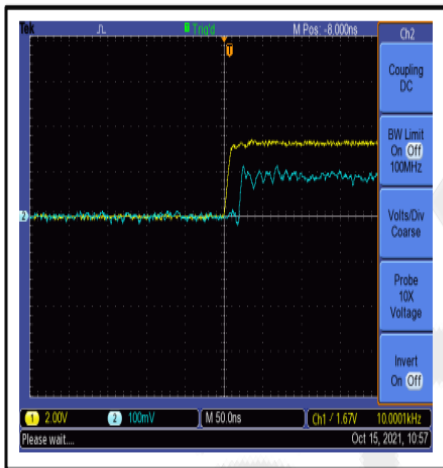
Phase Shift vs. Frequency



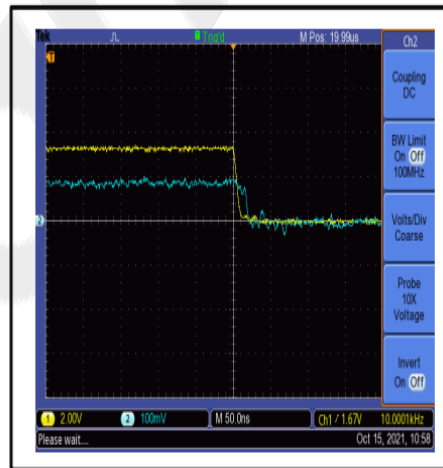
IIP3



Speed



Speed

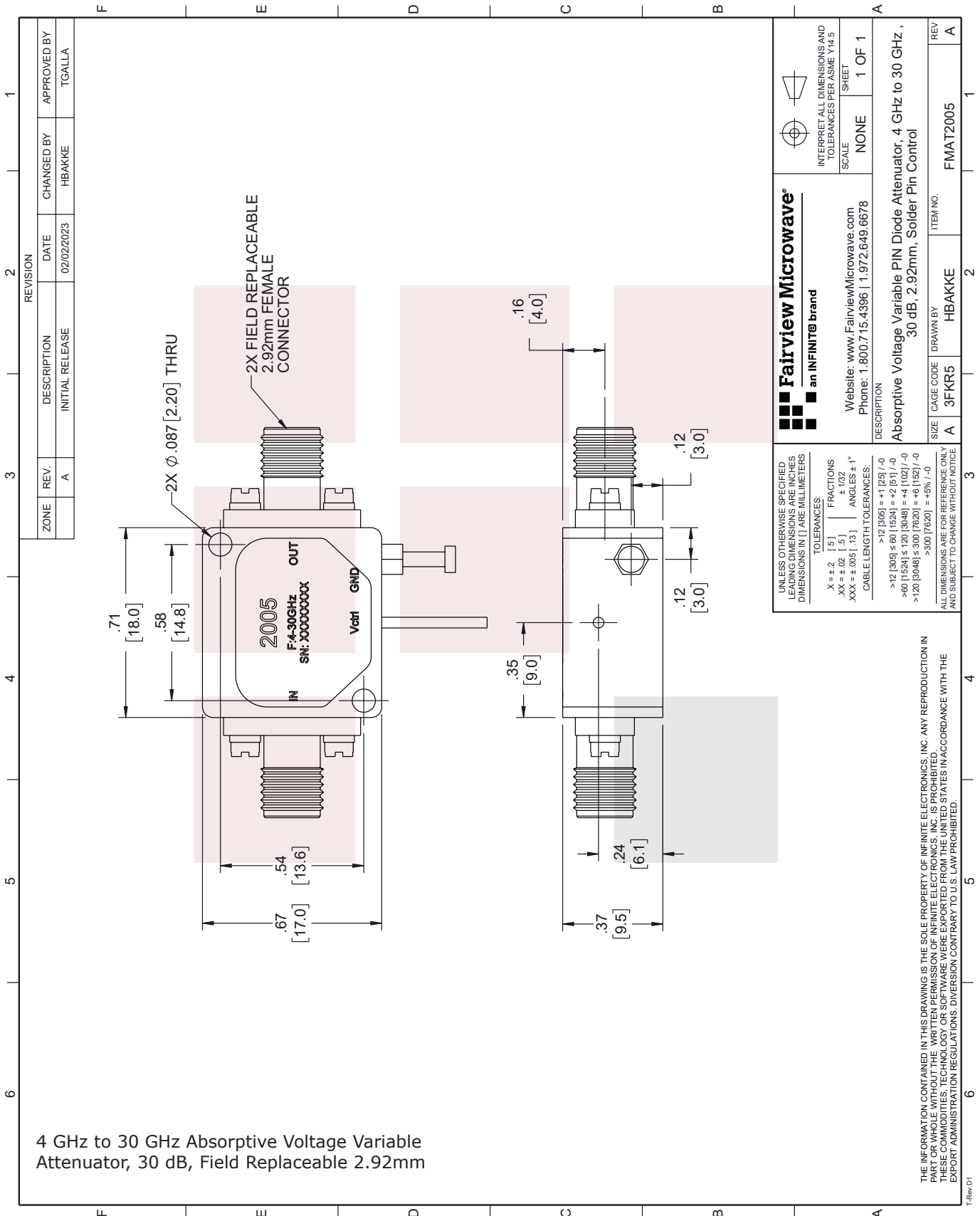


4 GHz to 30 GHz Absorptive Voltage Variable Attenuator, 30 dB, Field Replaceable 2.92mm from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [4 GHz to 30 GHz Absorptive Voltage Variable Attenuator, 30 dB, Field Replaceable 2.92mm FMAT2005](https://www.fairviewmicrowave.com/30db-voltage-variable-30-dbm-attenuator-pin-diode-30-ghz-fmat2005-p.aspx)

URL: <https://www.fairviewmicrowave.com/30db-voltage-variable-30-dbm-attenuator-pin-diode-30-ghz-fmat2005-p.aspx>

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Fairview Microwave reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Fairview Microwave does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Fairview Microwave does not assume any liability arising out of the use of any part or documentation.



ZONE	REV.	DESCRIPTION	DATE	CHANGED BY	APPROVED BY
	A	INITIAL RELEASE	02/02/2023	HBAKKE	TGALLA

REVISION	DESCRIPTION
2	
1	

Fairview Microwave
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INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5
SCALE: NONE
SHEET: 1 OF 1

DESCRIPTION:
Absorptive Voltage Variable PIN Diode Attenuator, 4 GHz to 30 GHz, 30 dB, 2.92mm, Solder Pin Control

SIZE	CAGE CODE	DRAWN BY	ITEM NO.
A	3FKR5	HBAKKE	FMAT2005

UNLESS OTHERWISE SPECIFIED, LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [] ARE MILLIMETERS

TOLERANCES:
 .X = ±.2 [5] | FRACTIONS ±.132 | ANGLES ± 1°
 .XX = ±.02 [.5] | .XXX = ±.005 [.13]

CABLE LENGTH TOLERANCES:
 >12 [305] = +1 [25] / -0
 >60 [1524] ≤ 60 [1524] = +2 [51] / -0
 >60 [1524] ≤ 120 [3048] = +4 [102] / -0
 >120 [3048] ≤ 300 [7620] = +6 [152] / -0
 >300 [7620] = +5% / -0

ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE

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