

**4 GHz Phase Locked Oscillator in 0.5 inch SMT
 (Surface Mount) Package, 100 MHz External Ref.,
 Phase Noise -110 dBc/Hz**

The FMXP5012 is a 4,000 MHz Phase-Locked Oscillator with an external 100 MHz Reference Oscillator. This design features exceptional phase noise performance of -110 dBc/Hz @ 10 kHz offset. Supply Voltage is +5V DC @ 25 mA typ. The package is 0.9 inch SMT package with an industry standard mounting footprint. The bottom surface is copper clad with 2-5 micro inches of immersion gold over 150 - 250 micro inches of electroless nickel which makes it resistant to oxidation for ease of soldering. The reference oscillator has an output power level of +7 dBm +/- 3 dB and 2nd harmonic output of -25 dBc typical. The reference oscillator operates over a temperature range of -30°C to +70°C and is designed to meet a variety of MIL-STD-202 test conditions including Humidity, Shock, and Vibration.



Electrical Specifications

Description	Min	Typ	Max	Units
Output Frequency		4		GHz
Output Power	+4	+7	+10	dBm
Phase Noise @ 1kHz Offset		-105	-100	dBc/Hz
Phase Noise @ 10kHz Offset		-110	-105	dBc/Hz
Phase Noise @ 100kHz Offset		-120	-115	dBc/Hz
Phase Noise @ 1MHz Offset		-140	-135	dBc/Hz
Reference Frequency		100		MHz
Reference Impedance		50		Ohms
Ref. Phase Noise @ 10Hz Offset		-95		dBc/Hz
Ref. Phase Noise @ 100Hz Offset		-105		dBc/Hz
Ref. Phase Noise @ 1kHz Offset		-135		dBc/Hz
2nd Harmonics		-25	-20	dBc
Spurious		-70	-65	dBc
Supply Voltage (DC) 1		5		Vdc
Supply Current (DC) 1		25		mA
Supply Current (DC) 2		20	0	mA

Features:

- 4,000 MHz Phase-Locked Oscillator
- External 100 MHz Reference Oscillator
- -110 dBc/Hz @ 10kHz offset
- Pout +7 dBm
- Harmonics -25 dBc
- Designed to meet MIL-STD-202 Environmental Conditions
- connectorized version available see FMXC7008

Applications:

- Phase Locked Loop
- Function Generators
- Frequency Synthesizers
- Receivers
- Electronic Jamming Equipment
- Local Oscillator
- Wireless Communications
- SATCOM
- Optical Communications
- Military Electronic Systems

Mechanical Specifications

Size	
Length	0.5 in [12.7 mm]
Width	0.5 in [12.7 mm]
Height	0.13 in [3.3 mm]
Weight	0.019 lbs [8.62 g]
Mounting Surface Material and Plating Design	Copper Clad Nickel, Gold Commercial
Reference Type	External
Package Style	Surface Mount

Environmental Specifications

Temperature	
Operating Range	-30 to +70 deg C
Shock	IAW MIL-STD-202, Method 213, Condition A
Vibration	IAW MIL-STD-202, Method 204, Condition A

Fairview Microwave
 1130 Junction Dr. #100
 Allen, TX 75013
 Tel: 1-800-715-4396 / (972) 649-6678
 Fax: (972) 649-6689
www.fairviewmicrowave.com
sales@fairviewmicrowave.com

ESD Sensitivity

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

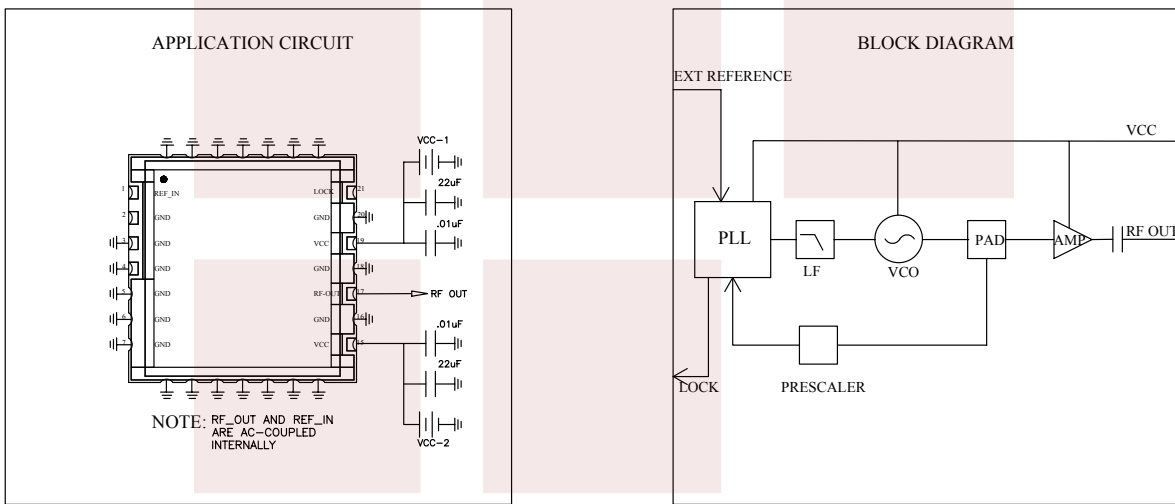


Compliance Certifications (see [product page](#) for current document)

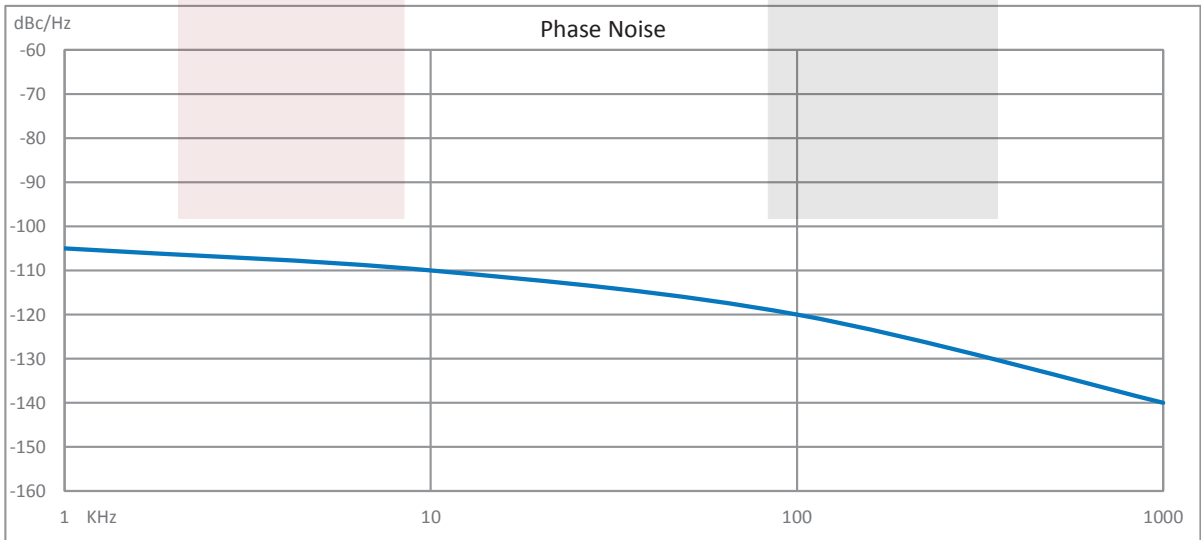
Plotted and Other Data

Notes:

Functional Block Diagram



Typical Performance Data



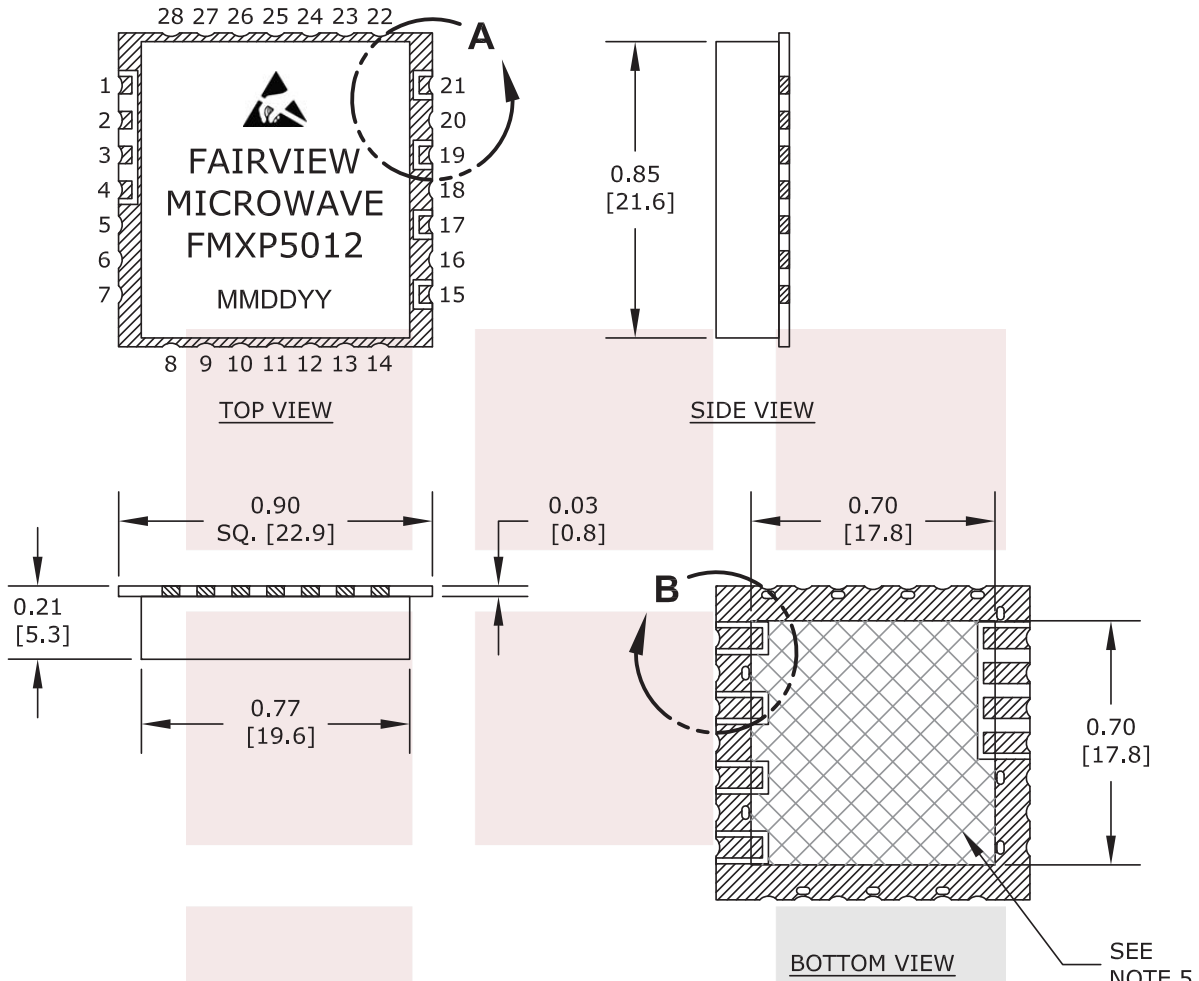
4 GHz Phase Locked Oscillator in 0.5 inch SMT (Surface Mount) Package, 100 MHz External Ref., Phase Noise -110 dBc/Hz from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [4 GHz Phase Locked Oscillator in 0.5 inch SMT \(Surface Mount\) Package, 100 MHz External Ref., Phase Noise -110 dBc/Hz FMXP5012](#)

URL: <https://www.fairviewmicrowave.com/4-ghz-phase-locked-oscillator-smt-surface-mount-external-fmvp5012-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.





UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN: inches [mm]
TOLERANCES ARE:
.XX = ± .03 [.762]
.XXX = ± .005 [.127]

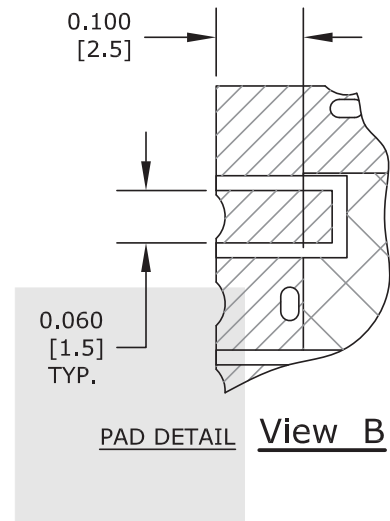
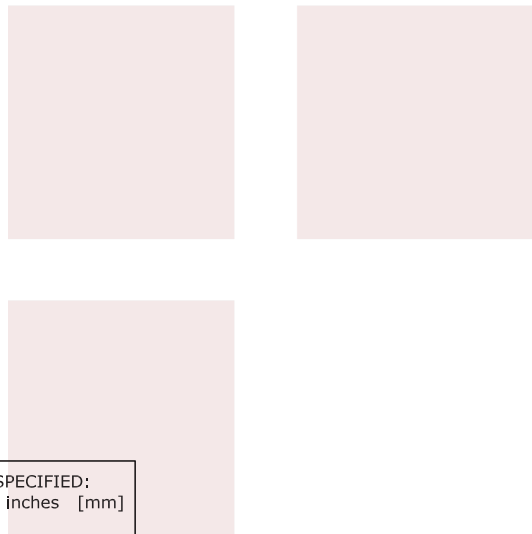
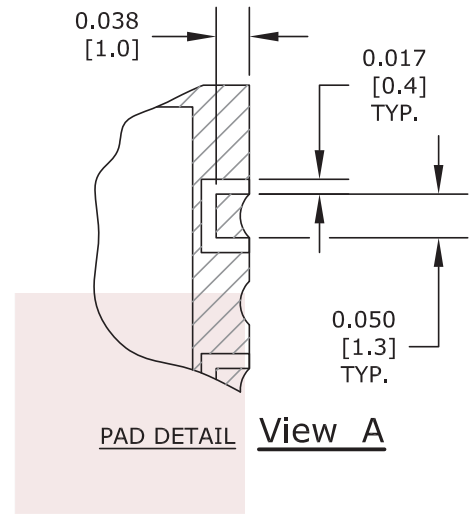
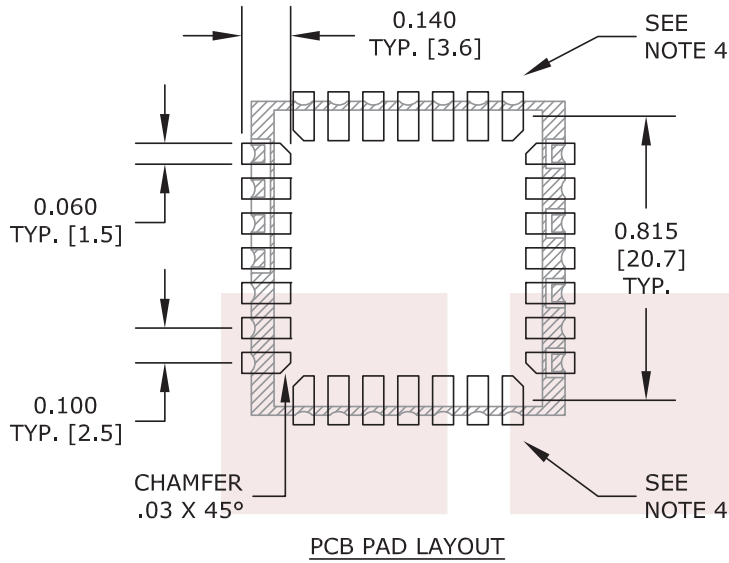
* THESE DIMENSIONS AND TOLERANCES
SUPERSEDE NOTE #1 ON TITLE BLOCK.

NOTES:

1. SINGLE HATCHED AREA REPRESENTS EXPOSED METALIZATION.
2. DOUBLE HATCHED AREA REPRESENTS MASK OVER METALIZATION.
3. RECOMMENDED PAD LAYOUT IAW IPC-7351.
4. TOP AND BOTTOM GROUND PADS MAY BE USED IN HIGH VIBRATION APPLICATIONS, MAY BE OMITTED FOR NORMAL OPERATION.
5. DOUBLE HATCHED AREA REPRESENTS MASKED (TENTED) VIAS AND TRACES, REMOVE ALL METALIZATION FROM THIS AREA ON MATING PART.

Pin Configuration							
1	RF IN	8	GND	15	Vcc-2	22	GND
2	GND	9	GND	16	GND	23	GND
3	GND	10	GND	17	RF OUT	24	GND
4	GND	11	GND	18	GND	25	GND
5	GND	12	GND	19	Vcc-1	26	GND
6	GND	13	GND	20	GND	27	GND
7	GND	14	GND	21	LOCK	28	GND

FAIRVIEW MICROWAVE INC. ALLEN, TX 75013 WWW.FAIRVIEWMICROWAVE.COM		NOTES: 1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL. 2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME. 3. DIMENSIONS ARE IN INCHES [mm].			
TITLE 4 GHz Phase Locked Oscillator in 0.5 inch SMT (Surface Mount) Package, 100 MHz External Ref., Phase Noise -110 dBc/Hz		DWG NO FMXP5012		CAGE CODE 3FKR5	
CAD FILE	120116	SHEET	SCALE	N/A	SIZE A 2233



UNLESS OTHERWISE SPECIFIED;
 DIMENSIONS ARE IN: inches [mm]
 TOLERANCES ARE:
 .XX = ± .03 [.762]
 .XXX = ± .005 [.127]

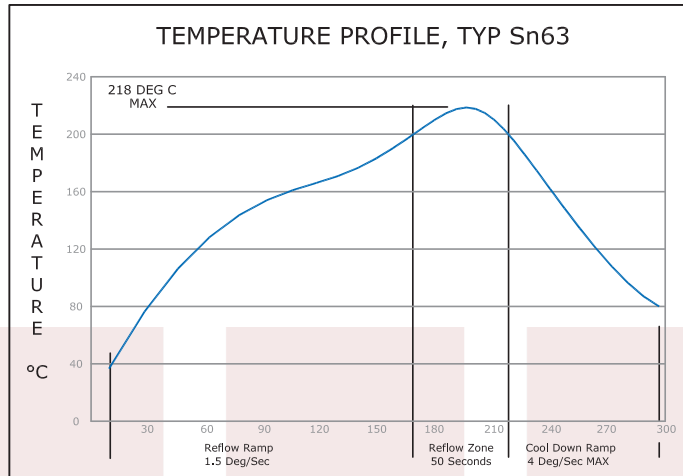
* THESE DIMENSIONS AND TOLERANCES
 SUPERSEDE NOTE #1 ON TITLE BLOCK.

NOTES:

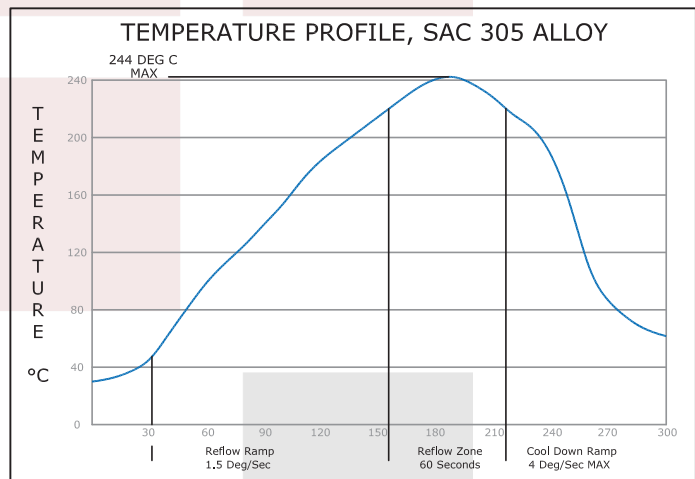
1. SINGLE HATCHED AREA REPRESENTS EXPOSED METALIZATION.
2. DOUBLE HATCHED AREA REPRESENTS MASK OVER METALIZATION.
3. RECOMMENDED PAD LAYOUT IAW IPC-7351.
4. TOP AND BOTTOM GROUND PADS MAY BE USED IN HIGH VIBRATION APPLICATIONS, MAY BE OMITTED FOR NORMAL OPERATION.
5. DOUBLE HATCHED AREA REPRESENTS MASKED (TENTED) VIAS AND TRACES, REMOVE ALL METALIZATION FROM THIS AREA ON MATING PART.

FAIRVIEW MICROWAVE INC. ALLEN, TX 75013 WWW.FAIRVIEWMICROWAVE.COM		NOTES: 1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL. 2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME. 3. DIMENSIONS ARE IN INCHES [mm].			
TITLE 4 GHz Phase Locked Oscillator in 0.5 inch SMT (Surface Mount) Package, 100 MHz External Ref., Phase Noise -110 dBc/Hz		DWG NO FMXP5012		CAGE CODE 3FKR5	
CAD FILE	120116	SHEET	SCALE	N/A	SIZE A 2233

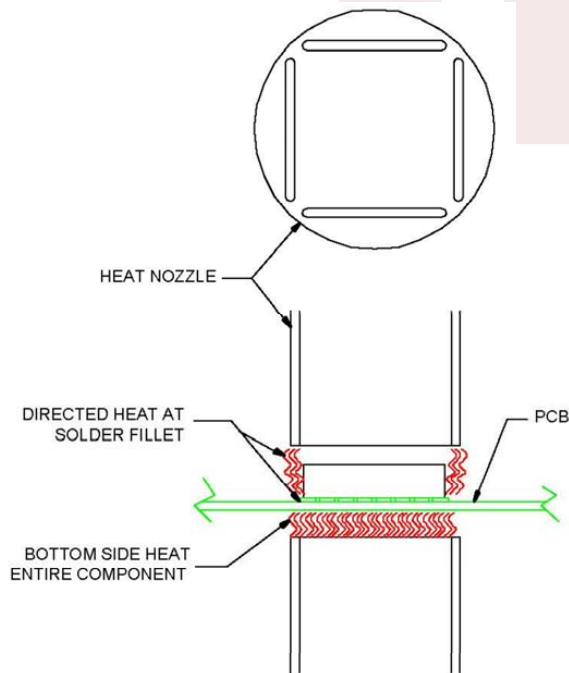
TYPICAL ATTACHMENT REFLOW PROFILES



NON-RoHS



RoHS



REMOVAL INSTRUCTIONS

1. ESD PRECAUTIONS MUST BE OBSERVED DURING REWORK.
2. APPLY A LIBERAL AMOUNT OF FLUX TO ALL SOLDER CONNECTIONS.
3. REMOVE EXCESS SOLDER WITH A SOLDERING IRON AND WICK.
4. APPLY HEAT AND LIFT THE COMPONENT STARTING AT ONE CORNER WITH A SMALL SPATIAL OR SIMILAR TOOL. CARE MUST BE TAKEN NOT TO BUMP THE LID WHICH MAY CAUSE INTERNAL SHORTS.
5. REMOVE ANY REMAINING SOLDER ON THE PADS PRIOR TO RE-ATTACHMENT.

FAIRVIEW MICROWAVE INC. ALLEN, TX 75013 WWW.FAIRVIEWMICROWAVE.COM		NOTES: 1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL. 2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME. 3. DIMENSIONS ARE IN INCHES [mm].			
TITLE 4 GHz Phase Locked Oscillator in 0.5 inch SMT (Surface Mount) Package, 100 MHz External Ref., Phase Noise -110 dBc/Hz		DWG NO FMXP5012		CAGE CODE 3FKR5	
CAD FILE	120116	SHEET	SCALE	N/A	SIZE A 2233