

# 34 TO 36 GHz LOW-NOISE FRONT END WITH LO MULTIPLIER OPTION

## MODELS: SYSMM1X3436, SYSMM2X3436 AND SYSMM3X3436

### FEATURES

- Low noise figure ..... 2.9 dB typical
- High gain ..... 37 dB typical
- Output 1 dB comp. .... +10 dBm typical
- Integrated packaging ..... Hermetically sealed
- Integrated LO multiplier

The SYSMM3X3436 is an integrated low-noise converter with internal image filtering, and LO multiplier. The integrated LO multiplier provides higher front-end compression point than would be possible with a passive sub-harmonic mixer. Internal LO filtering reduces spurious and fundamental LO leakage. All devices are screened to MIL-STD-883 method 1010 and 1008 prior to hermetic sealing for high reliability. The single piece housing is a robust mechanical design for ease of use in any system. Waveguide inputs, alternate frequency bands, and quadrature or image rejection style units are available. Please contact MITEQ.

### ELECTRICAL SPECIFICATIONS

INPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
RF frequency range		GHz	34		36
RF VSWR	50 ohm ref.	Ratio		2.5:1	
V+ bias current	@ +9 to +16 V			330	
V- bias current	@ -9 to -16 V			30	
LO frequency range	SYSMM1X3436	GHz		32	
	SYSMM2X3436	GHz		16	
	SYSMM3X3436	GHz		10.67	
LO power range		dBm	+10	+12	+14
LO VSWR		Ratio		2.5:1	
TRANSFER CHARACTERISTICS	CONDITION	UNITS	MIN.	TYP.	MAX.
Conversion gain		dB	31	37	
Image rejection		dB	15	25	
Single-sideband noise figure		dB		2.9	3.3
Output power at 1 dB compression point		dBm	+7	+10	
OUTPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
IF frequency range		GHz	2		4
IF VSWR		Ratio		2:1	

NOTE: Test data supplied at 25°C; conversion gain, image rejection, noise figure and output 1 dB compression point.

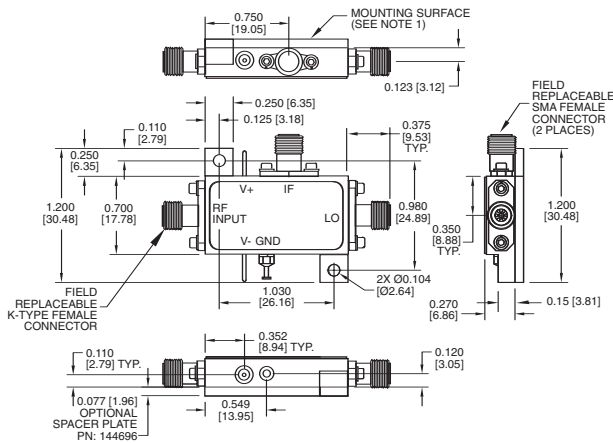
#### MAXIMUM RATINGS

Specification temperature ..... +25°C  
 Operating temperature ..... -40 to +65°C  
 Storage temperature ..... -65 to +95°C

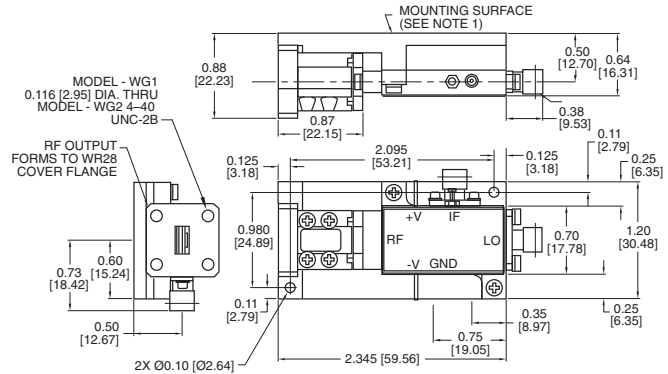
# SYSM1X3436, SYSM2X3436 AND SYSM3X3436

## OUTLINE DRAWINGS

### STANDARD UNIT



### WG1, 2 WAVEGUIDE OPTIONS



#### NOTES:

- Units mounting surface shall be attached to a heatsink capable of dissipating the devices power consumption without exceeding the devices temperature limits.
- All dimensions shown in brackets [ ] are in millimeters.

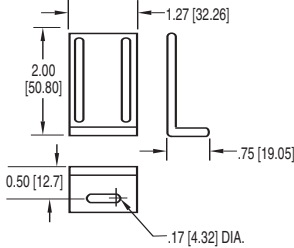
### ORDERING INFORMATION

- SYSM3X3436 .....Front end with 3X LO multiplier
- SYSM2X3436 .....Front end with 2X LO multiplier
- SYSM1X3436 .....Front end with fundamental LO
- SYSM3X3436WG1 .....Front end with 3X LO multiplier and RF waveguide port
- SYSM2X3436WG1 .....Front end with 2X LO multiplier and RF waveguide port
- SYSM1X3436WG1 .....Front end with fundamental LO and RF waveguide port

Standard waveguide interface has 0.116 diameter clearance holes.  
For waveguide port with #4-40 tapped holes, substitute...WG2 for...WG1.

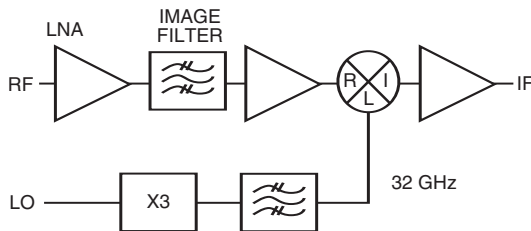
### AVAILABLE OPTIONS

PART NO.	DESCRIPTION
OPT143047	External DC-DC converter to generate -V for single supply requirements
OPT163370	Heatsink for non-waveguide unit
OPT144696	Spacer plate for non-waveguide unit (used when mounting unit to a flat surface, plate allows clearance for connectors)
OPT147307	L-shape mounting bracket



147307 L-SHAPE MOUNTING BRACKET

### BLOCK DIAGRAM



### TYPICAL APPLICATION

