

LINE INTERFACE MODULE

40 TO 80 VDC INPUT

LIM SERIES
50 - 250 WATT

FEATURES

- -55°C to +125°C operation
- 40 to 80 VDC input
- Fixed frequency, 550 kHz typical
- Topology – Non-isolated buck
- 35 VDC input with lowered efficiency
- Withstands transients of up to 90 V for up to 120 ms.
- 35 VDC output
- Inhibit function
- Power readiness function
- Load fault/short circuit protection
- Up to 94% efficiency, 90 W/in³



MODEL THROUGHPUT POWER	
MODEL	WATTS
LIM5050™	50
LIM50250™	250

LIM5050

Size (max.): Non flanged

1.460 x 1.130 x 0.330 (37.08 x 28.70 x 8.38 mm)

Flanged

2.005 x 1.130 x 0.330 (50.93 x 28.70 x 8.38 mm)

See Section B8, cases E1 and G1, for dimensions.

Weight: 30 grams typical

Screening: Standard, ES, or 883

See Section C2 for screening options, see Section A5 for ordering information.

DESCRIPTION

The LIM50™ Series of line interface modules provide a nominal output voltage of 35 VDC from input voltages of 45 to 75 VDC with efficiencies of 94% or higher. Sustained operation at voltages as high as 80 or as low as 35 are possible with reduced efficiency. The LIM5050 module delivers 50 watts of output power over the full military temperature range of -55°C to +125°C and fits in a package of 1.460 x 1.130 x 0.330 inches (37.08 x 28.70 x 8.38 mm) maximum, resulting in a power density of 91 watts/in³.

SCREENING

The LIM Series™ modules offer three screening options – Standard, ES, or 883. See Section C2, Screening, for descriptions.

CONVERTER DESIGN

The LIM5050 modules are non-isolated converters operating at a frequency between 500 kHz and 600 kHz. The control circuitry uses average current mode control to achieve a wide bandwidth with little or no overshoot over a wide range of loads. These converters are specifically designed to accommodate loads with a negative impedance such as those presented by Interpoint DC/DC converters with a constant power consumption.

PARALLEL OPERATION: UP TO 10 MODULES

Up to 10 LIM Series modules can be paralleled for increased power. Current sharing is typically within 2%.

OVERLOAD AND CURRENT LIMIT

Current overload protection is accomplished by monitoring the output current resulting in a constant current mode when the load exceeds approximately 125% of rated load at full output voltage.

When the overload condition forces the output voltage to drop the maximum current delivered falls from approximately 1.9 amps to less than 1.5 amps. This feature keeps the short circuit dissipation low and forces the output voltage to collapse rapidly thereby preventing operation in an abnormal condition. Combined with the "Power Ready" signal (see below), this foldback of the output current prevents power cycling of the downstream converters.

POWER READY SIGNAL

To avoid high current surges during power up, the interface module has a signal intended to connect to the inhibit lines of Interpoint converters to keep these converters turned off until the interface module's output exceeds approximately 13 volts thereby assuring that, in an overload condition, the converters powered by the interface module will shut off before the power ready signal turns them off. This feature prevents repeated limit cycling in an overload condition.

INHIBIT

The LIM Series modules have an open collector TTL compatible inhibit terminal that can be used to disable power conversion, resulting in a very low quiescent input current and no generation of switching noise.

Future offerings are planned for the LIM Series of modules. Please contact your Interpoint representative listed in Section A5, for more details.

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ABSOLUTE MAXIMUM RATINGS

- Input Voltage**
- 40 to 72 VDC
- Output Power**
- 50 watts
- Lead Soldering Temperature (10 sec per lead)**
- 300°C
- Storage Temperature Range (Case)**
- -65°C to +150°C

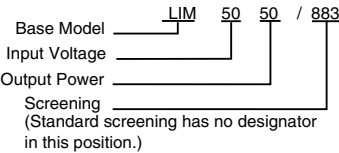
RECOMMENDED OPERATING CONDITIONS

- Input Voltage Range**
- 40 to 72 VDC continuous
- Case Operating Temperature (Tc)**
- -55°C to +125°C full power
 - -55°C to +135°C absolute

INHIBIT

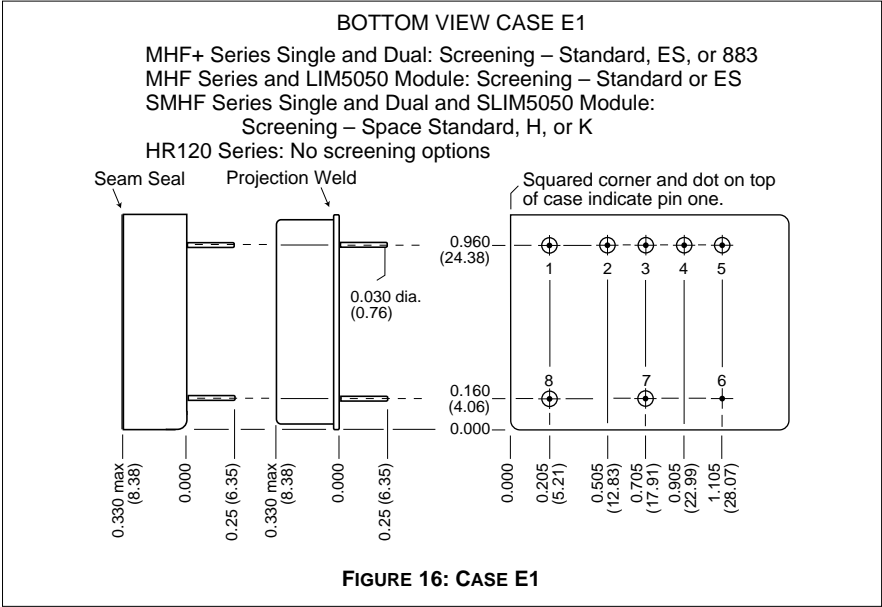
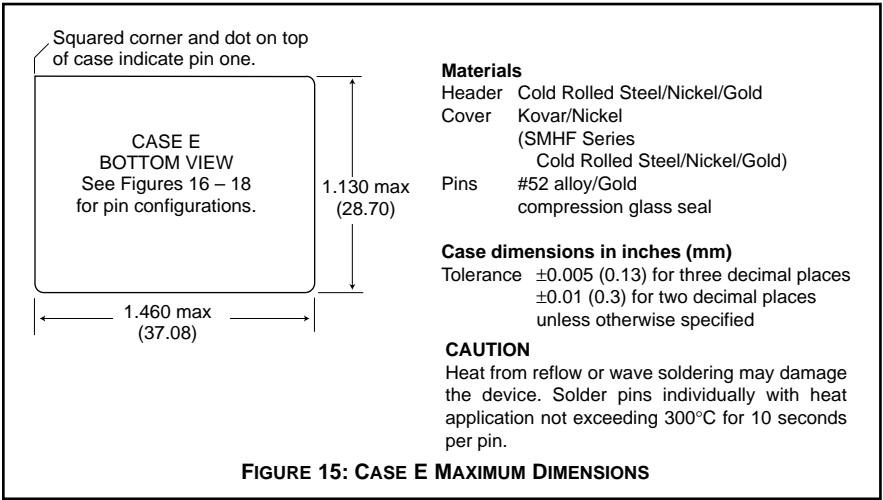
- Inhibit: TTL Open Collector**
- Logic low (output disabled)
 - Referenced to input common
 - Logic high (output enabled)

MODEL NUMBERING KEY



CASE E

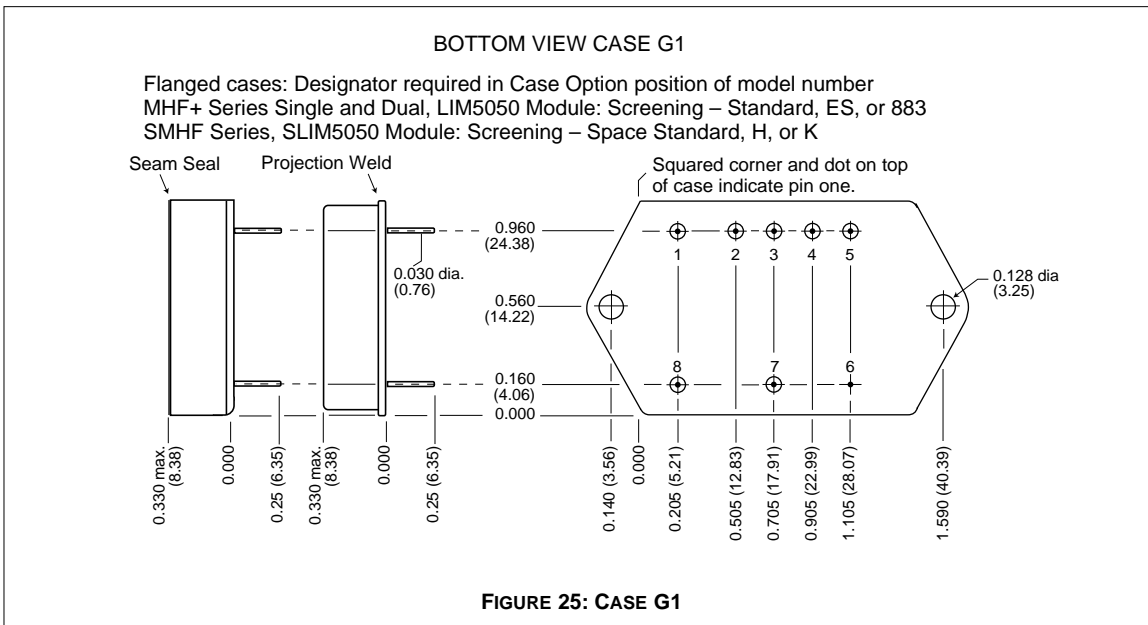
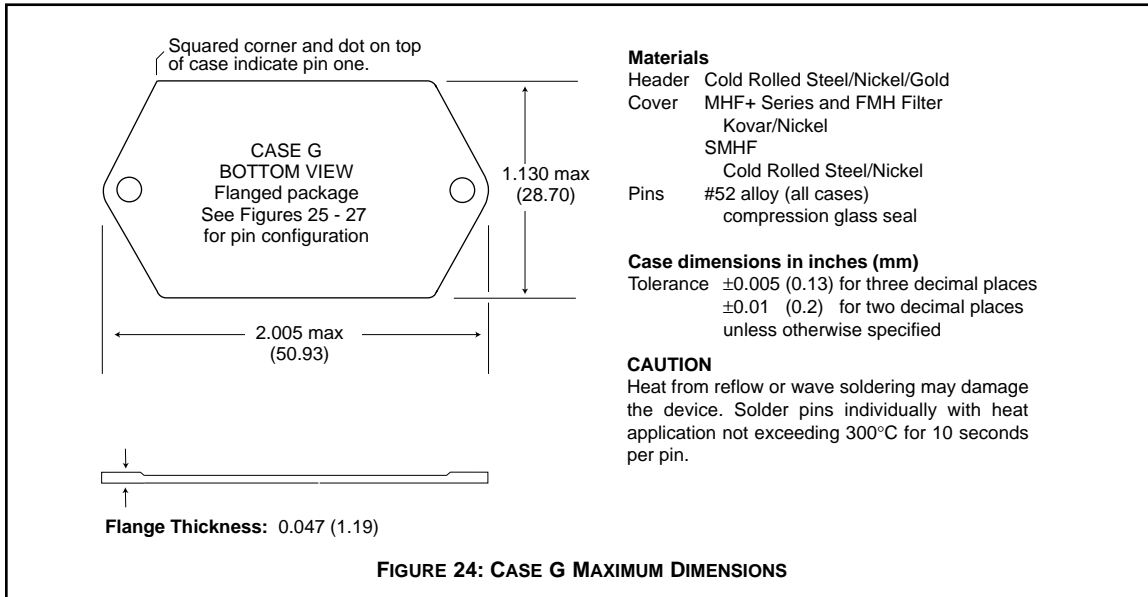
CASES



Note: Although every effort has been made to render the case drawings at actual size, variations in the printing process may cause some distortion. Please refer to the numerical dimensions for accuracy.

CASES

CASE G



Note: Although every effort has been made to render the case drawings at actual size, variations in the printing process may cause some distortion. Please refer to the numerical dimensions for accuracy.

QA SCREENING 125°C PRODUCTS

125°C PRODUCTS

TEST (125°C Products)	STANDARD	/ES	/883 (Class H)*
PRE-CAP INSPECTION Method 2017, 2032	yes	yes	yes
TEMPERATURE CYCLE (10 times) Method 1010, Cond. C, -65°C to 150°C Method 1010, Cond. B, -55°C to 125°C	no no	no yes	yes no
CONSTANT ACCELERATION Method 2001, 3000 g Method 2001, 500 g	no no	no yes	yes no
BURN-IN Method 1015, 160 hours at 125°C 96 hours at 125°C case (typical)	no no	no yes	yes no
FINAL ELECTRICAL TEST MIL-PRF-38534, Group A Subgroups 1 through 6: -55°C, +25°C, +125°C Subgroups 1 and 4: +25°C case	no yes	no yes	yes no
HERMETICITY TESTING Fine Leak, Method 1014, Cond. A Gross Leak, Method 1014, Cond. C Gross Leak, Dip (1 x 10 ⁻³)	no no yes	yes yes no	yes yes no
FINAL VISUAL INSPECTION Method 2009	yes	yes	yes

Test methods are referenced to MIL-STD-883 as determined by MIL-PRF-38534.

*883 products are built with element evaluated components and are 100% tested and guaranteed over the full military temperature range of -55°C to +125°C.

Applies to the following products

MOR Series	MHD Series	MGH Series	FMGA EMI Filter
MFLHP Series	MHV Series	MCH Series	FMSA EMI Filter
MFL Series	MHF+ Series	FM-704A EMI Filter	HUM Modules**
MHP Series	MHF Series**	FMD**/FME EMI Filter	LCM Modules**
MTR Series	MGA Series	FMC EMI Filter	LIM Modules
MQO Series**	MSA Series	FMH EMI Filter	

**MFLHP Series, MQO Series, MHF Series, FMD EMI Filters, Hum Modules, and LCM Modules do not offer '883' screening.