

interpoint

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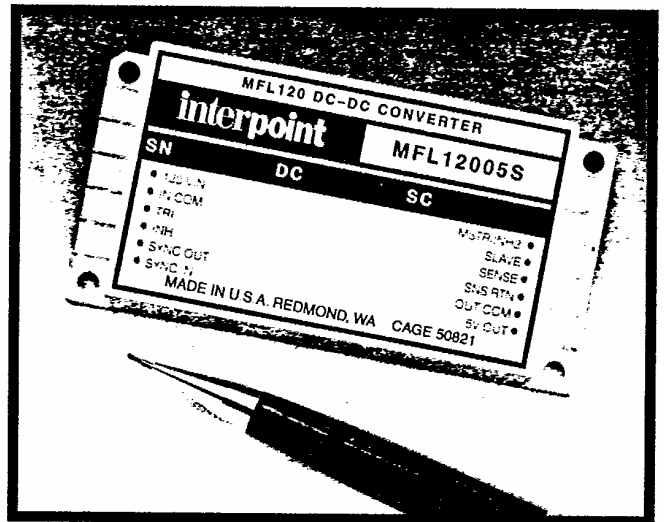
MFL 120 SERIES: TECHNICAL PREVIEW

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- **Up to 70 watts output power**
- **80-160 Vdc input**
- **Parallelable for up to 195 watts output**
- **125°C full power operation**
- **0.39 in. height**
- **Single and dual outputs, 5,12,15, 28 Vdc**
- **50 dB audio rejection**
- **Meets MIL-STD-461C CS01 and CS02 susceptibility standards**
- **Current limiting short circuit protection**
- **Low voltage lockout**



The MFL 120 Series dc-dc converters are rated up to 70 watts output power over a -55 to +125°C temperature range with 120 Vdc nominal input. Current sharing allows the units to be paralleled for total power of up to 195 watts. The welded, hermetically sealed package is only 3.0 x 1.5 x 0.39 inches, giving the series an overall power density of up to 45 watts per cubic inch.

The MFL 120 Series converters are constant frequency, pulse width modulated converters which use a quasi-square wave single-ended forward design. Tight load regulation is achieved through a wide-bandwidth magnetic feedback circuit.

MEETS MILITARY REQUIREMENTS

The MFL Series, like all Interpoint's new generation dc-dc converters, operates over the entire -55 to +125°C temperature range. There is no derating of either output power or input voltage over the MIL-STD-704A through D power bus range. Only high temperature ceramic input capacitors are used for wider operating margins and higher product reliability.

MFL 120 converters will meet MIL-STD-461C's CS01 and CS02 audio and RF susceptibility standards without external components.

FLEXIBLE SYNCHRONIZATION

To ensure system compatibility, the MFL converters' 575 kHz nominal switching frequency can be synchronized with a system clock for any rate between 500 and 675 kHz. Converter-to-converter sync is also standard, with either unit able to assume master or slave roles.

NEW PERFORMANCE FEATURES

The MFL converters also offers:

Current limiting overload protection—sensed in the secondary and internally set at 115%.

Low voltage lockout—prevents the units from operating below a minimum input voltage to keep initialization routines smooth.

Load fault soft-start—gives predictable 2 ms (typ) ramp up after short circuit conditions to reduce stress.

Failsafe overvoltage protection—nearly all failure modes result in zero output voltage, providing protection for the load.

TYPICAL CHARACTERISTICS: T=25°C, V_{in} =NOM unless otherwise specified.

OPERATING TEMPERATURE RANGE:

Full power: -55° to +125°C (case)

Absolute: -55° to +135°C (case)

STORAGE TEMPERATURE RANGE: -65°C to +150°C

ISOLATION: 100 megohm min at 500 Vdc

AUDIO REJECTION: Up to 50 dB (typical)

WEIGHT: 80 grams

Conversion Frequency:

Free run mode: 575 kHz typ.

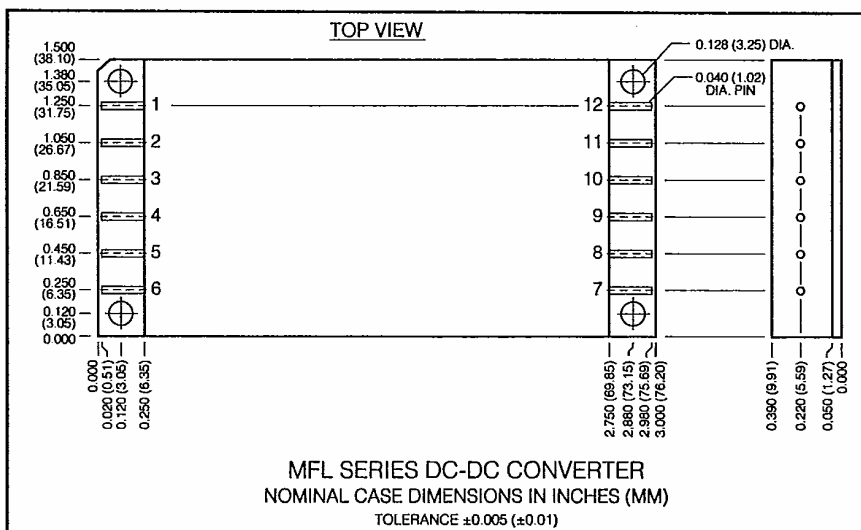
Synchronized mode: 500 to 675 kHz

PARALLELABLE: Up to 3 units

PARAMETER	CONDITIONS	MODELS							UNITS
		MFL12005S	MFL12012S	MFL12015S	MFL12028S	MFL12005D	MFL12012D	MFL12015D	
INPUT VOLTAGE	-55 TO +125°C NO LOAD TO FULL	80-160	80-160	80-160	80-160	80-160	80-160	80-160	Vdc
INPUT CURRENT	NO LOAD	15	15	15	15	15	15	15	mA
INPUT RIPPLE CURRENT	FULL LOAD 10kHz to 10MHz	30	30	30	30	30	30	30	mAp-p
OUTPUT VOLTAGE	FULL LOAD	5	12	15	28	±5	±12	±15	Vdc
OUTPUT POWER ¹	-55 to +125°C V_{W} MIN TO MAX	50	65	70	70	50	65	70	W
OUTPUT CURRENT ²	-55 to +125°C V_{W} MIN TO MAX	10	5.4	4.67	2.5	±5.0	±2.7	±2.33	A
OUTPUT RIPPLE VOLTAGE	FULL LOAD 10kHz to 2MHz	20	40	40	70	30	40	40	mVpp
EFFICIENCY	FULL LOAD	80	84	85	84	80	84	85	%
LOAD REGULATION	NO LOAD TO FULL $+V_{OUT}$ $-V_{OUT}$	5 -	5 -	5 -	50 -	15 30	15 50	15 50	mV
STEP LOAD RESPONSE	50% to 100%	300	500	500	1000	300	500	500	mVpk
LINE REGULATION	FULL LOAD $+V_{OUT}$ $-V_{OUT}$	5 -	5 -	5 -	15 -	15 30	15 30	15 30	mV
STEP LINE RESPONSE	MIN TO MAX V_{W}	50	120	300	300	100	300	300	mVpk
START UP DELAY	FULL LOAD	140	140	140	140	140	140	140	mS

1. On dual output models, up to 70% of full power is available from either output.

2. Total rated output (for dual models) may not exceed rated maximum. Operation with up to 70% of total load from either output is permissible with derated parameters.



DESIGNATION	PIN SINGLE* OUTPUT	PIN DUAL OUTPUT	PIN 12028S OUTPUT
Positive input	1	1	1
Input common	2	2	2
Triple	3	3	3
Inhibit 1	4	4	4
Sync out	5	5	5
Sync in	6	6	6
Positive output	7	7	7
Output common	8	8	9
Negative output	-	9	-
CS Ref	-	-	8
Sense return	9	-	-
Positive sense	10	-	-
Slave	11	11	11
Master/inhibit 2	12	12	12

*Except for MFL12028S