

LMO78_3.0 series

Wide Input Non-Isolated & Regulated, Single Positive/Negative Output

Switching Regulator

- ⊕ High efficiency up to 95%
- ⊕ Operating temperature range: -40°C ~ +85°C
- ⊕ Wide input ranges: 4.5~14VDC and 10~30VDC
- ⊕ Short circuit protection (SCP)
- ⊕ Open frame packages
- ⊕ Non-isolated, no need for heatsink
- ⊕ Remote On/Off
- ⊕ CTRL-Pin

The LMO78_3.0 series is a high efficiency switching regulator up to 95%. The product is featured with trim-pin, control-pin and short circuit protection and no heat sink is required. They are widely used in industrial control, instrumentation, and electric power applications.



Common specifications	
Short circuit protection:	Hiccup, automatic recovery
No-load input current:	30mA TYP
Input Filter:	Capacitor Filter, 10μF TYP
Cooling:	Free air convection
Operation temperature range:	-40°C~+85°C With derating
Storage temperature range:	-55°C ~+125°C
Storage humidity range:	< 95%RH
Case material:	Open frame
MTBF (+25°C MIL-HDBK-217F):	4.4x106 hours
Weight:	2g
Dimensions:	LMO78_1206: 15.5x9.4x6.0mm LMO78_2406/2415: 16.5x10.4x6.0mm

Output specifications						
Item	Test conditions	Min	Typ	Max	Units	
Voltage tolerance			±2	±3	%	
Line regulation	Vin= min to max at full load		±0.2		%	
Load regulation	0% To 100% F.L (Vo≥ 2.5V)		±0.8		%	
Current limit			220		%	
Ripple + Noise	100% F.L BW=20MHz	60	75	150	mVp-p	
Switching frequency		270	300	330	KHz	
Dynamic load response (recovery time)	50% load step change		120		μs	
Temperature coefficient	-40 °C to +85 °C ambient	-1		+1	%/°C	

Example:
LMO78_1205-3.0
 LMO = Series; 12 = 12Vin; 05 = nom. 5Vout; pp =3.0A

Product Selection Guide

Part Number	Input Voltage [VDC] Nominal (Range)	Output Voltage [VDC]	Output Current [mA]	Efficiency [%/output voltage VDC]	Capacitive load [μF, max]
LMO78_1205-3.0	12 (4.5-14)	0.59-6	3000	93/3.3	500
LMO78_2405-3.0	24 (10-30)	3-6	3000	91/5	500
LMO78_2412-3.0	24 (10-30)	5-15	3000	95/12	500

Note:

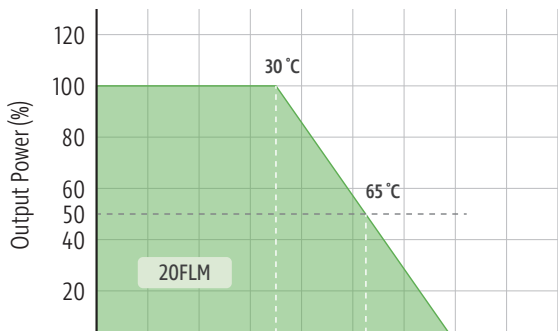
1. The max. capacitive load should be tested within the input voltage range and under full load conditions;
2. Without any special statement, all indexes are only specific to positive output application;
3. Unless otherwise specified, data in this datasheet should be tested under the conditions of Ta = 25°C, humidity <75% when inputting nominal voltage and outputting rated load;
4. All index testing methods in this datasheet are based on our Company's corporate standards;
5. Specifications subject to change without prior notice.

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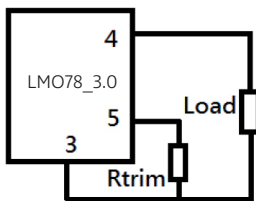
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Typical characteristics

Temperature Derating Graph



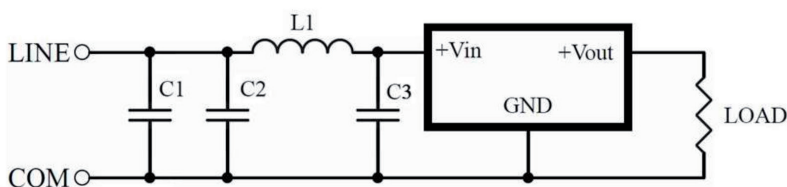
Trim applications



Part number	R Trim [KΩ]
LMO78_1205-3.0	$1.18/(V_o-0.59)$
LMO78_2405-3.0	$11.2/(V_o-3)$
LMO78_2412-3.0	$8.4/(V_o-5)$

Remote ON/OFF	DC-DC ON	Open or 1~12Vdc
	DC-DC OFF	0~0.3Vdc
Remote off state input current	Nominal Vin	6mA Typ

Typical application circuit



$C1=220\mu\text{F}/100\text{V}, \text{ESR}<0.1\Omega$;

$C2, C3=22\mu\text{F}/35\text{V}1210 \text{ MLCC}$

$L1=10\mu\text{H}$ Molding inductor

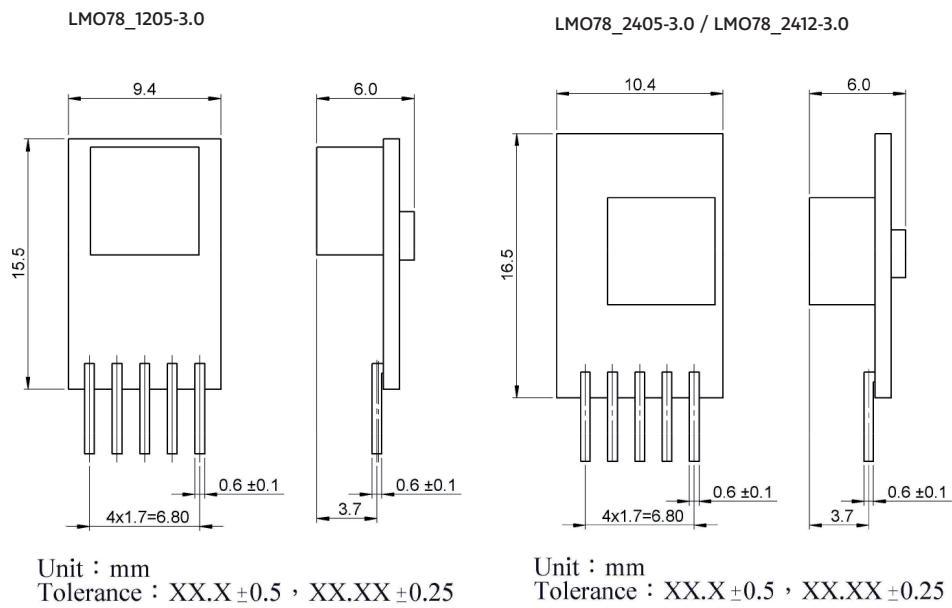
PIN Assignment

Pin	1	2	3	4	5
Function	Remote On/Off	+Vin	GND	+Vout	Trim

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Mechanical dimensions



PIN	1	2	3	4	5
Function	Remote On/Off	+Vin	GND	+Vout	Trim

Note:

Unit: mm

Tolerance: XX.X ± 0.5, XX.XX ± 0.25