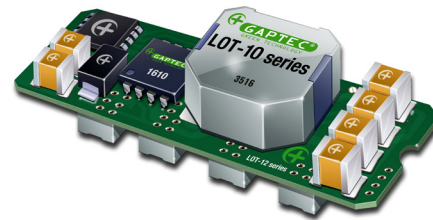


## LOT-10 Series

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



## Switching Regulator

- ⊕ Efficiency up to 93%
- ⊕ Operating temperature range: -40°C ~ +85°C
- ⊕ Short circuit protection (SCP)
- ⊕ Input under-voltage lockout
- ⊕ SMD package
- ⊕ Compliant to RoHS directive 2002/95/EC

The LOT-10 series are high efficiency switching regulators. The product is featured with high efficiency, low loss, short circuit protection and no heat sink requirement.

They are widely used in wireless networks, Telecom/Datacom, distributed power architectures, industry control systems, semiconductor equipment, microprocessor power applications, etc.



### Common specifications

Short circuit protection:	Hiccup, automatic recovery
Temperature rise at full load:	25°C MAX, 15°C TYP
Cooling:	Free air convection
Operation temperature range:	-40°C~+85°C (with derating)
Storage temperature range:	-55°C ~+125°C
Thermal shock:	MIL-STD-810F
Over temperature protection:	125°C TYP
Operating case temperature:	100°C
Storage humidity range:	< 95%RH
MTBF (+25°C MIL-HDBK-217F):	1.048x10 <sup>6</sup> hours TYP
Weight:	6g

### Input specifications

Item	Test conditions	Min	Typ	Max	Units
Voltage tolerance	<ul style="list-style-type: none"> <li>Vo(set) ≤ 3.63V</li> <li>Vo(set) &gt; 3.63V</li> </ul>	8.3	12	14	VDC
Input current	Vin=8.3 to 14.0Vdc; Io(max.)			7	A
Input filter*	C filter				
No Load Current	(Vin=12V, Io=0, Module enabled) <ul style="list-style-type: none"> <li>Vo(set)=0.75Vdc</li> <li>Vo(set)=5.0Vdc</li> </ul>		40		mA
			100		mA
Under Voltage Lockout	<ul style="list-style-type: none"> <li>Start-up Voltage</li> <li>Shutdown Voltage</li> </ul>		7.9		V
			7.8		V
Input reflected ripple current	5~20MHz, 1uH source impedance		20		mAp-p

\* It's necessary to equip the external input capacitors at the input of the module. The capacitors should connect as close as possible to the input terminals that ensuring module stability. The external Cin is 4x47μF ceramic capacitors at least.

### Output specifications

Item	Test conditions	Min	Typ	Max	Units
Output current				10	A
Voltage tolerance	Full load and Vin(nom.)			±2	%
Minimum load				0	%
Line regulation	Vin=Vin(min) to Vin(max) at Full Load		±0.3		%
Load regulation	0% to 100% load		±0.4		%
Ripple + Noise*	20MHz Bandwidth			75	mVp-p
Temperature coefficient				0.03	%/°C
Dynamic load response*	Load change step (50% to 100% or 100% to 50% of Io (max) Setting time (Vo<10% peak deviation)		25		mS
Peak deviation	ΔIo/Δt = 2.5A/uS, Vin(nom)		200		mV
Dynamic load response**	Load change step (50% to 100% or 100% to 50% of Io (max) Setting time (Vo<10% peak deviation)		25		mS
Peak deviation	ΔIo/Δt = 2.5A/uS, Vin(nom)		100		mV
Output current limit			200		%
External load capacitance	<ul style="list-style-type: none"> <li>ESR ≥ 1mΩ</li> <li>ESR ≥ 10mΩ</li> </ul>			1000	uF
				5000	uF
Switching frequency		300			KHz
Output voltage overshoot-startup	Vin=Vin(min) to Vin(max); F.L.		1		%
Voltage adjustability	(see fig.1)	0.7525		5	V

\* External with Cout = 1μF ceramic//10μF tantalum capacitors.

\*\* External with Cout = 2x150μF polymer capacitors.

### Model selection:

LOT\_xx-10

LO= Series; T= case type; ##= Vin; pp= output current

### Example:

LOT\_12-10

LO= Series; T= SMT; 12= Vin (nominal); 10= Output current: 10A

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

### Feature specifications

Item	Test conditions	Min	Typ	Max	Units
Remote ON/OFF	ON = $0V < V_r < 0.3V @ I_{IN}$			10	$\mu A$
Negative logic (standard)	OFF = $2.5V < V_r < V_{in}(Max) @ I_{IN}$			1	mA
Input current of remote control pin		0.01		1	mA
Remote off state input current			2		mA
Nominal $V_{in}$					
Remote sense strange				0.5	V
Rise time	Time for $V_o$ to rise from 10% to 90% of $V_o(set)$			6	ms
Turn-on delay time	Case 1 and 2, see notes below		3		ms

### Note:

Case 1: On/Off input is set to logic low (module on) and then input power is applied (delay from instant at which  $V_{in}=V_{in}(min.)$  until  $V_o=10\%$  of  $V_o(set)$ ).

Case 2: Input power is applied for at least one second and then the On/Off input is set to logic low (delay from instant at which  $V_{on/off}=0.3V$  until  $V_o=10\%$  of  $V_o(set)$ ).

Part Number	ON/OFF logic	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [min/max load; A]	Efficiency [%; typ]
LOT_12-10	negative	$V_o(set) \leq 3.63V$ $V_{in}= 8.3-14$	0.75 ~ 5.0	0/10	93

## Typical characteristics

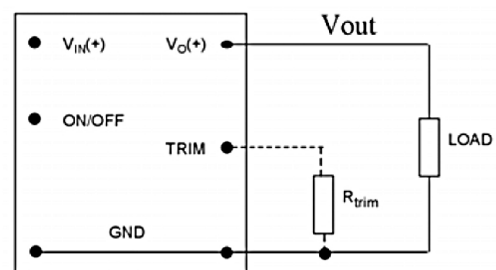
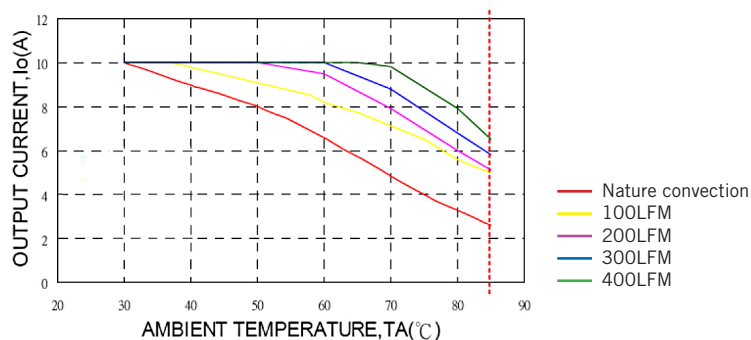
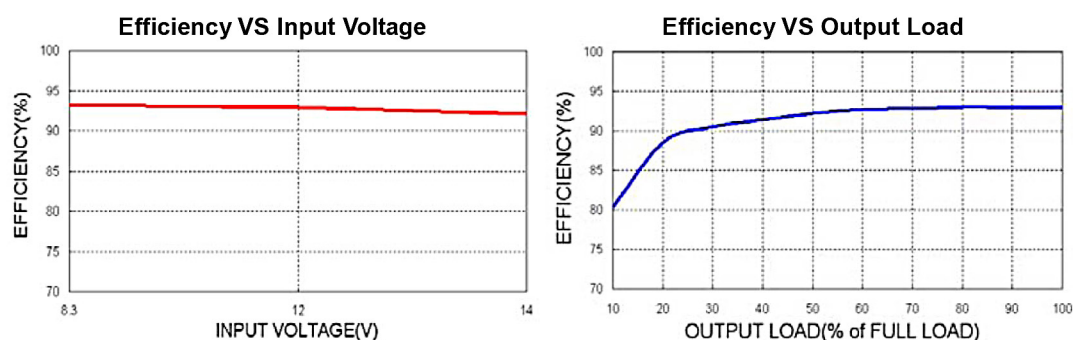


Fig. 1

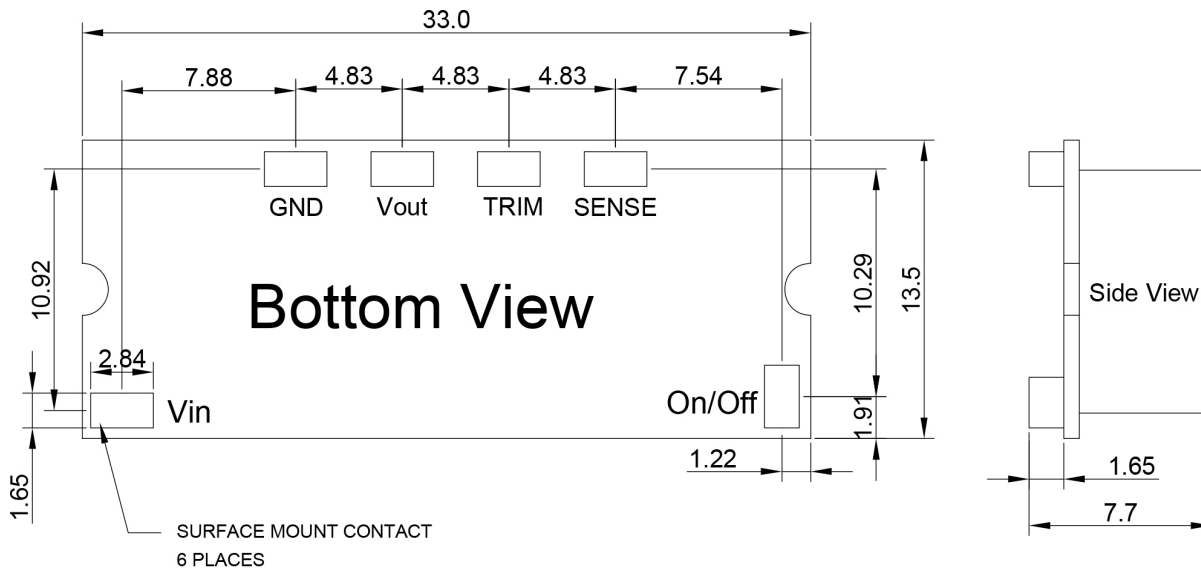
## Efficiency



## LOT-10 Series

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### Mechanical dimensions



#### 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  $T_a=25^{\circ}\text{C}$ , 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. The performance indexes of the product models listed in this manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact with our technician for specific information;
6. Specifications subject to change without prior notice.