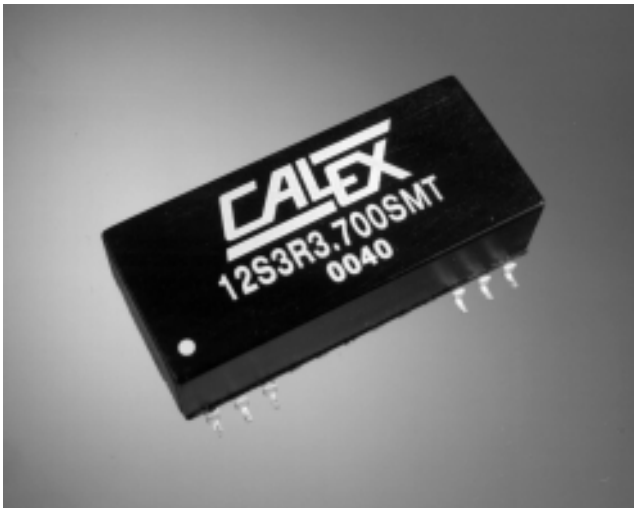


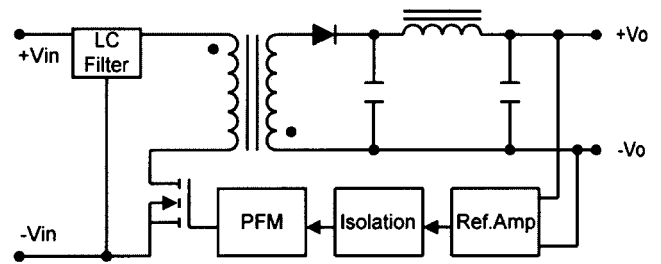
# 3 Watt SMT Single Series DC/DC Converters



## Features

- SMT Technology
- 2:1 Input Range
- High Efficiency up to 83%
- I/O Isolation 1500VDC
- Short Circuit Protected
- MTBF > 1,000,000 Hours

Selection Chart					
Model	Input Range VDC		Output		
	Min	Max	VDC	mA	Power W
12S3R3.700SMT	9	18	3.3	700	3
12S5.600SMT	9	18	5	600	3
12S12.250SMT	9	18	12	250	3
12S15.200SMT	9	18	15	200	3
24S3R3.700SMT	18	36	3.3	700	3
24S5.600SMT	18	36	5	600	3
24S12.250SMT	18	36	12	250	3
24S15.200SMT	18	36	15	200	3
48S3R3.700SMT	36	75	3.3	700	3
48S5.600SMT	36	75	5	600	3
48S12.250SMT	36	75	12	250	3
48S15.200SMT	36	75	15	200	3



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Input Parameters						
Model		12S3R3.700SMT	12S5.600SMT	12S12.250SMT	12S15.200SMT	Units
Voltage Range	MIN	9.0				VDC
	TYP	12.0				
	MAX	18.0				
Input Current No Load	TYP	20	20	20	20	mA
	Full Load	257	316	305	305	
Reflected Ripple	TYP	25				mA
Under Voltage Shutdown	MAX	8				VDC
Reverse Polarity Input Current	MAX	0.5				A
Short Circuit Input Power	MAX	1500				mW
Input Filter		Pi Filter				
Efficiency	TYP	75	79	82	82	%
Switching Frequency	TYP	300				kHz
Input Surge Voltage (1000 ms)	MIN	-0.7				VDC
	MAX	25				
Internal Power Dissipation	MAX	2500				mW
Recommended Fuse		750 mA Slow Blow Type				mA
Model		24S3R3.700SMT	24S5.600SMT	24S12.250SMT	24S15.200SMT	Units
Voltage Range	MIN	18.0				VDC
	TYP	24.0				
	MAX	36.0				
Input Current No Load	TYP	5	5	5	5	mA
	Full Load	127	156	151	151	
Reflected Ripple	TYP	15				mA
Under Voltage Shutdown	MAX	16				VDC
Reverse Polarity Input Current	MAX	0.5				A
Short Circuit Input Power	MAX	1500				mW
Input Filter		Pi Filter				
Efficiency	TYP	76	80	83	83	%
Switching Frequency	TYP	300				kHz
Input Surge Voltage (1000 ms)	MIN	-0.7				VDC
	MAX	50				
Internal Power Dissipation	MAX	2500				mW
Recommended Fuse		350 mA Slow Blow Type				mA
Model		48S3R3.700SMT	48S5.600SMT	48S12.250SMT	48S15.200SMT	Units
Voltage Range	MIN	36.0				VDC
	TYP	48.0				
	MAX	75.0				
Input Current No Load	TYP	3	3	3	3	mA
	Full Load	63	78	75	75	
Reflected Ripple	TYP	10				mA
Under Voltage Shutdown	MAX	32				VDC
Reverse Polarity Input Current	MAX	0.5				A
Short Circuit Input Power	MAX	1500				mW
Input Filter		Pi Filter				
Efficiency	TYP	76	80	83	83	%
Switching Frequency	TYP	300				kHz
Input Surge Voltage (1000 ms)	MIN	-0.7				VDC
	MAX	100				
Internal Power Dissipation	MAX	2500				mW
Recommended Fuse		200 mA Slow Blow Type				mA

# 3 Watt SMT Single Series DC/DC Converters

Output Parameters						
Model		12S3R3.700SMT 24S3R3.700SMT 48S3R3.700SMT	12S5.600SMT 24S5.600SMT 48S5.600SMT	12S12.250SMT 24S12.250SMT 48S12.250SMT	12S15.200SMT 24S15.200SMT 48S15.200SMT	Units
Output Voltage		3.3	5	12	15	VDC
Output Current	MIN MAX	70 700	60 600	25 250	20 200	mA
Output Voltage Accuracy	TYP MAX				±0.5 ±1.0	%
Load Regulation, I <sub>o</sub> =10% to 100%	TYP MAX				±0.3 ±1.0	%
Line Regulation, V <sub>in</sub> =Min. to Max.	TYP MAX				±0.1 ±0.3	%
Ripple & Noise (20MHz)	TYP MAX				50 75	mV P-P
Ripple & Noise (20MHz), Over Line, Load & Temp	MAX				100	mV P-P
Ripple & Noise (20MHz)	MAX				10	mV RMS
Over Load	MIN				120	%
Transient Recovery Time, 25% Load Step Change	TYP MAX				200 500	µs
Transient Response Deviation, 25 % Load Step Change	TYP MAX				±2 ±6	%
Temperature Coefficient	TYP MAX				±0.01 ±0.02	%/°C
Short Circuit					Continuous	

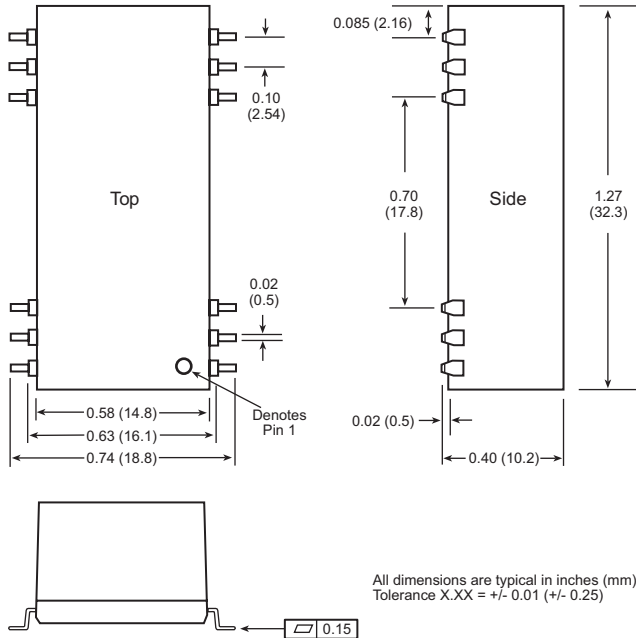
## NOTES

- (1) Specifications typical at T<sub>a</sub>=+25°C, resistive load, nominal input voltage, full rated output current unless otherwise noted.
- (2) Transient recovery time is measured to within 1% error band for a step change in output load 75% to 100%
- (3) When measuring output ripple & noise, an external 0.1µF ceramic capacitor is recommended to be placed from +V<sub>out</sub> to -V<sub>out</sub>.
- (4) Specifications subject to change without notice.
- (5) Water Washability - Calex DC/DC converters are designed to withstand most solder/wash processes. Careful attention should be used when assessing the applicability in your specific manufacturing process. Converters are not hermetically sealed.

General Specifications			
All Models			Units
<b>Isolation</b>			
Isolation Voltage, 60 Seconds	MIN	1500	VDC
Isolation Resistance, 500 VDC	TYP	1000	Mohms
Isolation Capacitance, 100kHz, 1V	TYP MAX	65 100	pF
<b>Environmental</b>			
Operating Temperature	MIN MAX	-40 +71	°C
Storage Temperature	MIN MAX	-40 +125	°C
Humidity	MAX	95	%
Cooling	Free-Air Convection		
<b>General</b>			
Case Size	1.27 x 0.74 x 0.4 inches 32.3 x 18.8 x 10.2mm		
Case Material	Non-Conductive Black Plastic		
Weight	10g		

# 3 Watt SMT Single Series DC/DC Converters

## Mechanical Configuration



Pin	Function
1, 2	-INPUT
3, 10, 11, 12, 14, 22	NC
13	+OUTPUT
15	-OUTPUT
23, 24	+INPUT

NC: No Connection

## Solder Reflow Profile

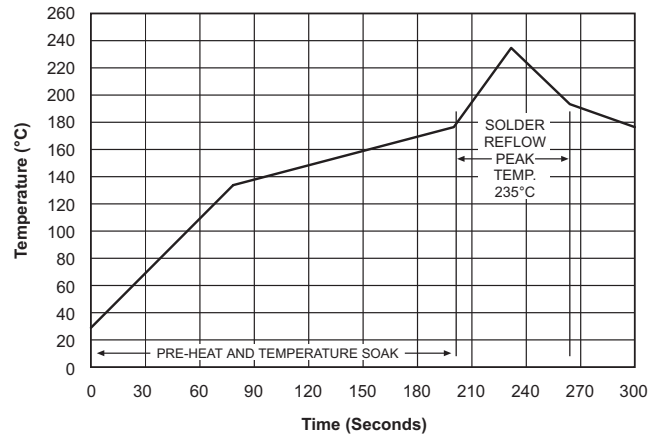
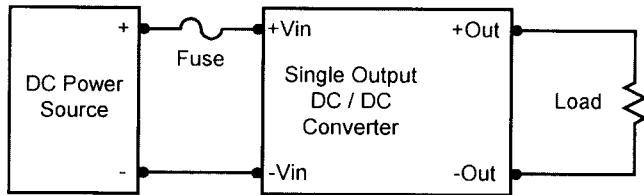


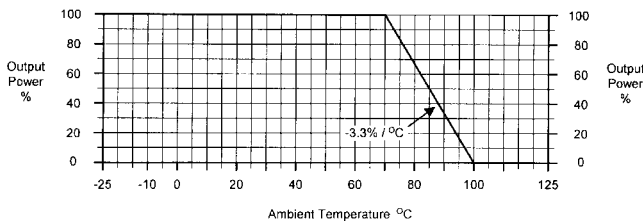
Figure 1.

The profile in Figure 1 should be used as a starting point for your own experiments. Obviously your optimal profile will be a function of many factors including, type of paste, paste thickness, board thickness, number of conductive layers, copper weight, the density of surrounding components, etc. It is recommended that the peak temperature should not exceed +235°C for an extended period of time.

## Typical Application



## Derating Curve



## Connecting Pin Patterns

