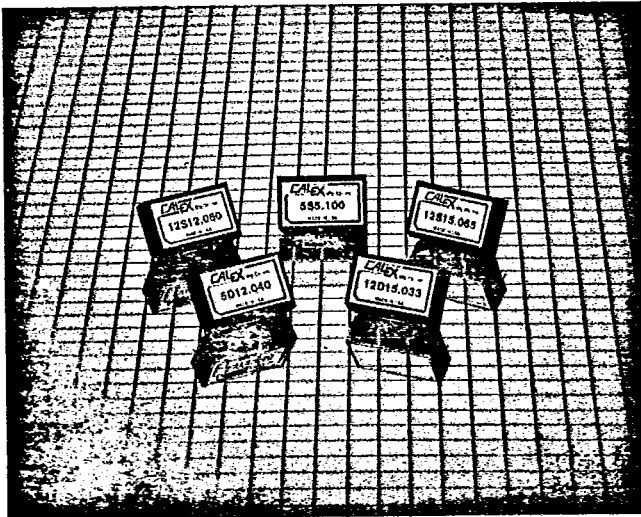


# 0.5 to 1.0 Watt Single & Dual Outputs

3355 Vincent Road, Pleasant Hill, CA 94523-4389 Telephone (415) 932-3911 Telex: 269 888 Telefax: (415) 932-6017

T-57-11  
**CALEX**



## FEATURES

- Low Noise Operation—LC Input Filter  
10 mV p-p Output Noise
- 300 VDC Ground Isolation
- High Placement Density "μWatt" Case  
0.8" × 1.25" × 0.4"
- Wide Input Voltage Range ±10%
- High Efficiency >50%
- Continuous Short Circuit Protection
- No External Components Required for Proper Operation
- Computer Tested Three Times During Manufacture
- Vacuum Encapsulated (No Voids) Potting for Long Life

## SELECTION CHART

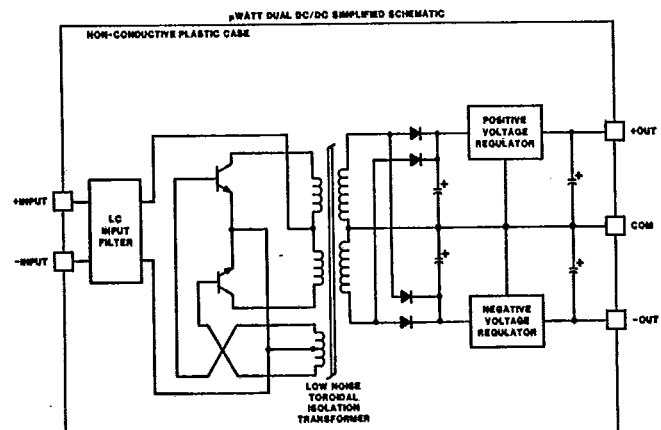
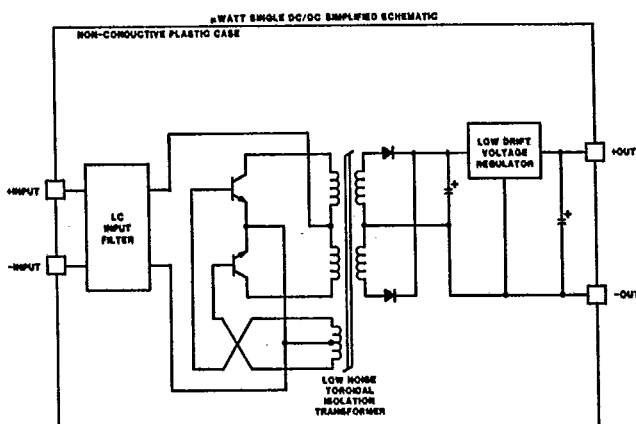
MODEL	INPUT RANGE VDC	OUTPUT VDC	OUTPUT mA	CASE*
5S5.100	5	5	100	F
5S12.080	5	12	80	F
5S15.065	5	15	65	F
12S5.100	12	5	100	F
12S12.080	12	12	80	F
12S15.065	12	15	65	F
5D12.040	5	±12	±40	F
5D15.033	5	±15	±33	F
12D12.040	12	±12	±40	F
12D15.033	12	±15	±33	F

\*Case details page 53

## DESCRIPTION

These DC/DC converters are designed to fill the high performance power needs of analog and digital systems.

The converters consist of a bipolar chopper stage driving a low noise toroidal power transformer that provides 300 VDC ground isolation, followed by a high regulation protected linear regulator for low noise highly stable outputs.





3355 Vincent Road, Pleasant Hill, CA 94523-4389 Telephone (415) 932-3911 Telex: 269 888 Telefax: (415) 932-6017

# 0.5 to 1.0 Watt Single & Dual Outputs

## ELECTRICAL SPECIFICATIONS

Conditions (Unless Noted): Vin Nominal, Tc = 25°C, Rated Load

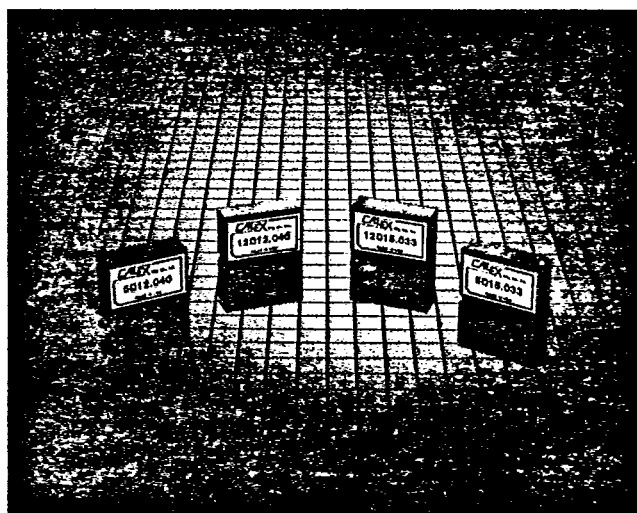
### INPUT PARAMETERS

MODEL		5S5.100	5S12.080	5S15.065	12S5.100	12S12.080	12S15.065	5D12.040 5D15.033	12D12.040 12D15.033	UNITS
Input Range	MIN	4.5			10.8			4.5	10.8	VDC
	TYP	5.0			12.0			5.0	12.0	
	MAX	5.5			13.2			5.5	13.2	
Input Current Full Load	TYP	250	380	380	100	150	150	380	150	mA
	No Load	75	85	90	20	28	28	80	30	
Input Reflected Ripple 0-20MHz, BW	TYP	5			15			7	15	mA p-p
	MAX	10			30			10	30	
Efficiency	TYP	40	50	51	42	53	54	50	53	%
Switching Frequency	TYP	50							50	KHz

### SPECIFICATIONS

MODEL		ALL MODELS	UNITS
<b>ISOLATION</b>			
Isolation Voltage	MIN	300	VDC
10µA Leakage			
Input to Output Capacitance	TYP	90	pF
Short Circuit Protection to Common for all Outputs		8 Hours Minimum	
<b>ENVIRONMENTAL</b>			
Case Operating Range No Derating	MIN	-25	°C
	MAX	70	°C
Storage Range	MIN	-35	°C
	MAX	90	°C
Case		F (see page 53)	
Thermal Impedance (1)	TYP	34	°C/Watt

(1) Defined as case temperature rise over ambient per package Watt dissipated.



### OUTPUT PARAMETERS

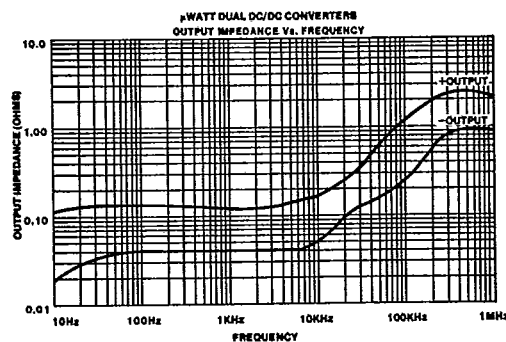
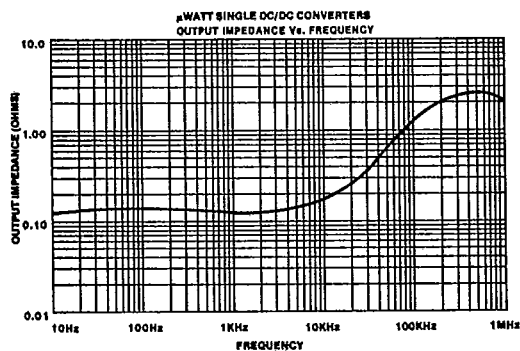
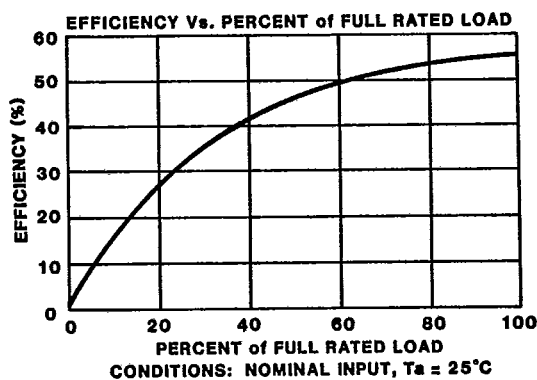
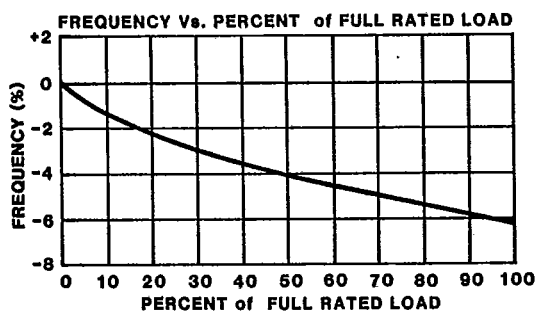
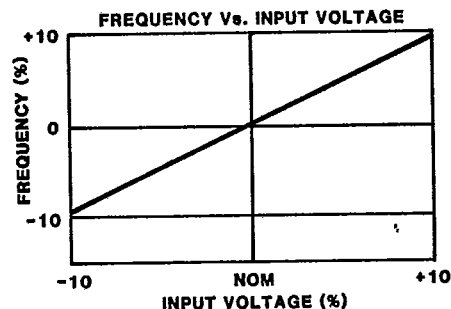
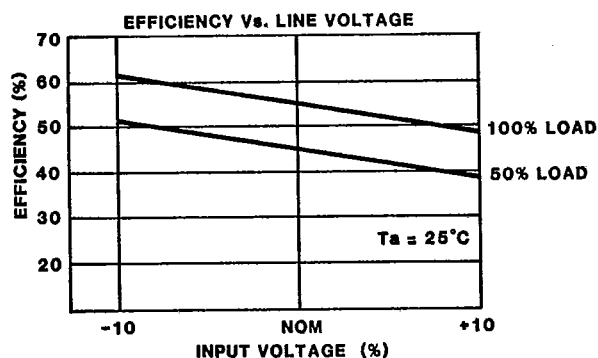
MODEL		5S5.100 12S5.100	5S12.080 12S12.080	5S15.065 12S15.065	5D12.040 12D12.040	5D15.033 12D15.033	UNITS
Output Voltage		5	12	15	± 12	± 15	VDC
Rated Load	MIN	0	0	0	0	0	mA
	MAX	100	80	65	± 40	± 33	
Accuracy 100% Load	MIN	4.75	11.40	14.25	11.40	14.25	VDC
	TYP	5.00	12.00	15.00	12.00	15.00	
	MAX	5.25	12.60	15.75	12.60	15.75	
Load Regulation NL-FL	TYP	0.5	0.20	0.20	0.20	0.20	%
	MAX	1.0	0.40	0.40	0.40	0.40	
Line Regulation Vin = LL - HL	TYP		0.15		0.15	0.15	%
	MAX		0.30		0.30	0.30	
Transient Response NL-FL FL-NL	TYP		5		5	5	µSec
	TYP		5		5	5	
Step Load Change to 0.1% Error							
Long Term Stability	TYP		0.4		0.4		%/KHrs
Short Term Stability (2)	TYP		0.2		0.2		%/24Hrs
Noise, 10Hz-20HMz Co = 0µF Co = 10µF*			80		60		mV p-p
	MAX		40		20		
	MAX						
Temp Coefficient	TYP		100		100		ppm/°C
	MAX		200		200		

(2) After 30 minute warm-up.

\*Sprague 199D 10µF @ 25VDC

# 0.5 to 1.0 Watt Single & Dual Outputs

3355 Vincent Road, Pleasant Hill, CA 94523-4389 Telephone (415) 932-3911 Telex: 269 888 Telefax: (415) 932-6017



# Case Sizes and Mounting Kits

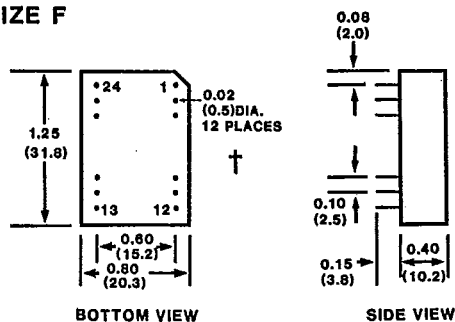


3355 Vincent Road, Pleasant Hill, CA 94523-4389 Telephone (415) 932-3911 Telex: 269 888 Telefax: (415) 932-6017

T-90-20

## 0.5 to 1.0 Watt Case pages 4-6

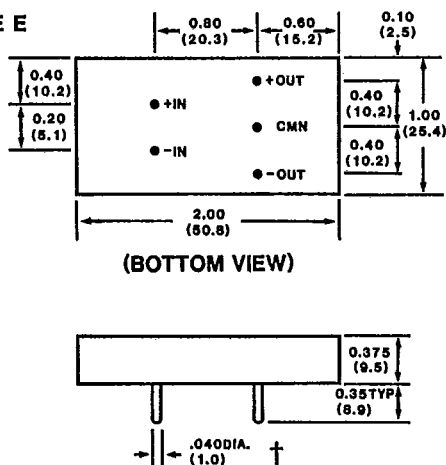
### CASE SIZE F



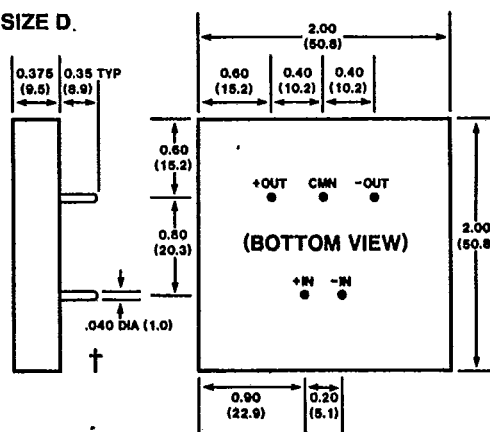
PIN NUMBER	SINGLE OUTPUTS	DUAL OUTPUTS
1	+Vin	+Vin
2	NC	-Vout
3	NC	OUT COM
10	-Vout	OUT COM
11	+Vout	+Vout
12	-Vin	-Vin
13	-Vin	-Vin
14	+Vout	+Vout
15	-Vout	OUT COM
22	NC	OUT COM
23	NC	-Vout
24	+Vin	+Vin

## 1.8 Watt thru 6 Watt Cases pages 7-27

### CASE SIZE E



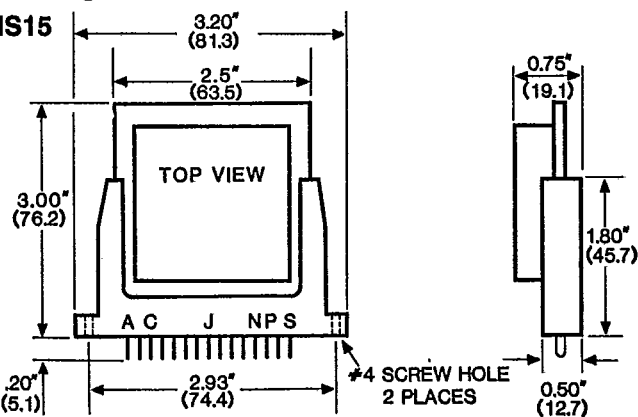
### CASE SIZE D



NOTE: Single output pin configuration not shown.

### Mounting Kits for D and E Cases

#### MS15

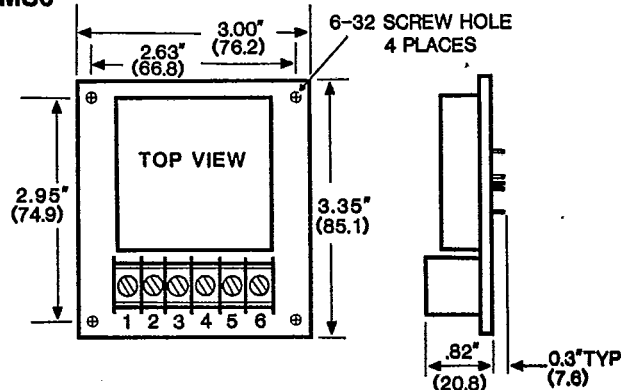


PIN	FUNCTION	
	SINGLE	DUAL
A	+ DC INPUT	+ DC INPUT
C	- DC INPUT	- DC INPUT
J	N/C	CMN.
N	KEY	KEY
P	+ OUTPUT	+ OUTPUT
S	CMN.	- OUTPUT

Alternate Industry Standard 5 pin configuration available upon request. Consult factory for details (415)932-3911.

† Seal around terminals is not hermetic. Do not immerse units in any liquid.

#### MS6



SCREW TERMINAL	FUNCTION	
	SINGLE	DUAL
1	+ OUTPUT	+ OUTPUT
2	N/C	CMN.
3	CMN.	- OUTPUT
4	N/C	N/C
5	+ DC INPUT	+ DC INPUT
6	- DC INPUT	- DC INPUT

