



# FQ6S3.3/24

## 6W SINGLE DC/DC CONVERTER



### Functional Description

The FQ6S3.3/24 Series is a 4:1 input range, 6 watt Single DC/DC Converter. It features 2000VDC minimum isolation ,24 pin DIP, short circuit protection, ON/OFF and RoHS compliant package.

High efficiency allows the converters to operate from -40 °C to +85°C without derating.

### Electrical Specifications: Regulated INPUT SPECIFICATIONS

Measured at 25°C with the condition of  $V_{IN}$  = Nominal and Full Load. Specifications subject to change without notice.

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Input Voltage Range	4:1	9	24	36	
Input Filter	$\pi$				
Start up Times	$V_{in}$ =24Vdc		300		ms
Remote ON/OFF(Note 1)	DC/DC ON Open or the following voltage	3.5	$V_r$	12	V
Remote ON/OFF(Note 1)	DC/DC OFF Short or the following voltage	0	$V_r$	1.2	V

### OUTPUT SPECIFICATIONS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Output Voltage			3.3		V
Output Current			1200		mA
Output Voltage Accuracy	$V_{in}$ =24Vdc & Full Load			±2	%
Minimum Load	5% of Full Load. See Note 2				
Ripple & Noise	@20MHz BW, $V_{IN}$ = 24V. See Note 3			50	mV <sub>PP</sub>
Line Regulation	$V_{IN}$ minimum to $V_{IN}$ maximum			±0.5	%
Load Regulation	20% FL to FL			±0.8	%
Short Circuit Protection	Continuous, Automatic Recovery				
Temperature Coefficient			±0.05		%/°C
Over Load Protection	$V_{in}$ =24Vdc & % of Full Load		150		%

### GENERAL SPECIFICATIONS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Efficiency	$V_{in}$ =24Vdc & Full Load		86		%
Isolation Voltage (1 sec.), Input to Output			2000		Vdc
Isolation Resistance			1		GΩ
Isolation Capacitance			1200		pF
Operating Frequency	$V_{in}$ = Nominal Input @ F.L.		250		kHz
MTBF	@25 °C		1200		kHrs
Conducted Emissions (See Note 4)	EN55022				
Radiated Emissions (See Note 4)	EN55022				
Vibration	10-55Hz, 2G, 30 minutes along X,Y,Z				

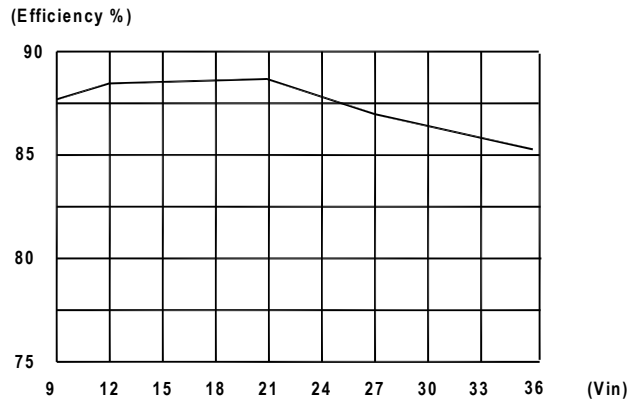
### ENVIRONMENTAL SPECIFICATIONS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Operating Temperature Range		-40		+85	°C
Storage Temperature Range		-55		+105	°C
Case Temperature				+100	°C
Humidity				95	%

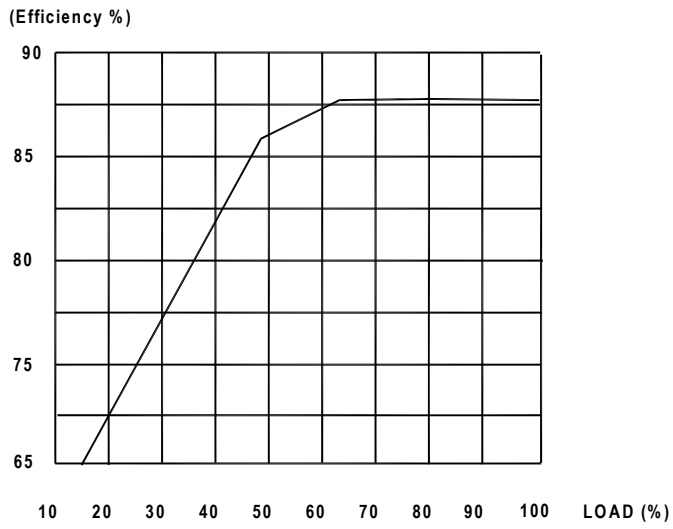
### PHYSICAL CHARACTERISTICS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Dimensions (L×W×H)	1.26×0.80×0.40 in. (32.00×20.32×10.20mm)				
Weight	0.63 oz. (18g)				
Case Material	Nickel Plated Copper				
Base Material	Non-Conductive Black Plastic				
Potting Material	Epoxy (UL94V-0)				

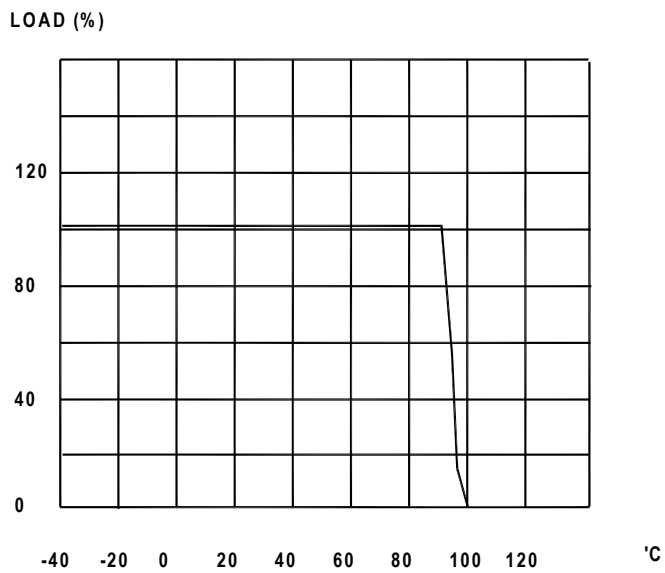
Efficiency vs. Input Voltage



Efficiency vs. Output Load



Load vs. Temperature



**Notes:**

1. The ON/OFF control pin voltage is referenced to negative input.
2. The DC/DC converter requires a minimum of 5% loading in order for the output to maintain specified regulation.
3. Measured with a 20MHZ bandwidth and a 0.1uF ceramic capacitor on the output.
4. Requires an external filter to meet EN55022 Class A.

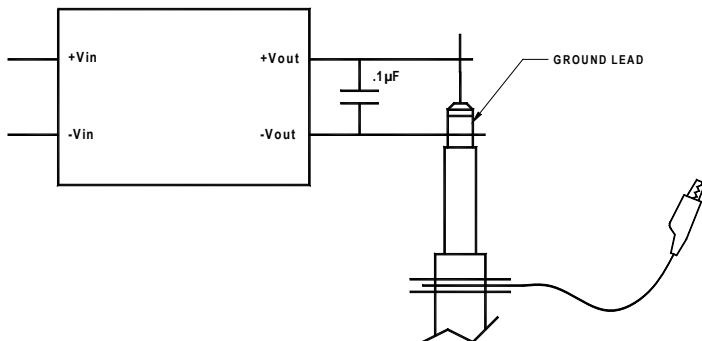
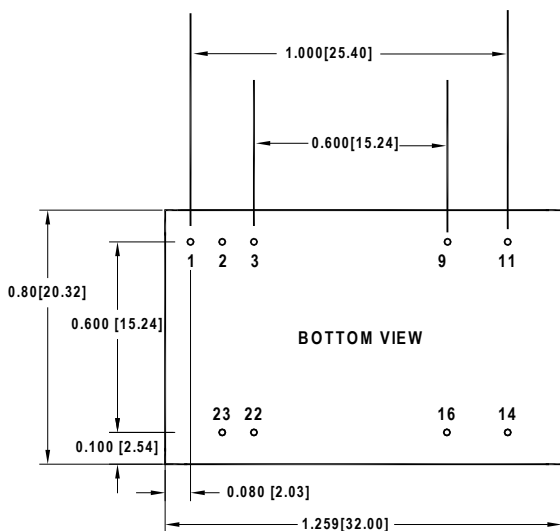


FIGURE 1. Recommended method to measure output ripple & noise with short runs to 0.1µF/50V @ 20MHz nominal input and full load.

**Mechanical Specifications**  
Dimensions are in mm



Pin	Function
1	NO PIN
22,23	+VIN
2,3	-VIN
9	NC
11	NC
14	+VOUT
16	-VOUT

