MC33368

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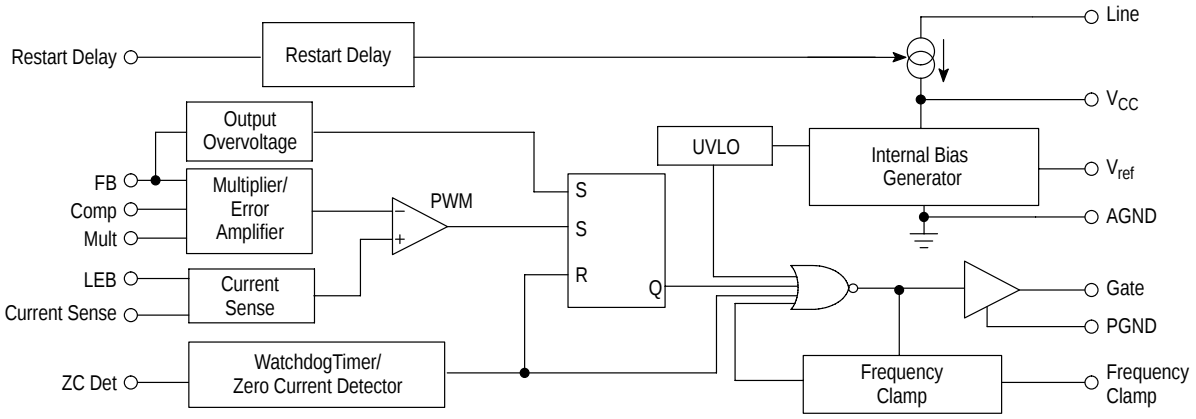


This device contains 240 active transistors.

Figure 1. Representative Block Diagram

MAXIMUM RATINGS (T_A = 25°C, unless otherwise noted)

Rating	Symbol	Value	Unit
Power Supply Voltage (Transient)	V_{CC}	20	V
Power Supply Voltage (Operating)	V_{CC}	16	V
Line Voltage	V_{Line}	500	V
Current Sense, Multiplier, Compensation, Voltage Feedback, Restart Delay and Zero Current Input Voltage	V_{in1}	−1.0 to +10	V
LEB Input, Frequency Clamp Input	V_{in2}	−1.0 to +20	V
Zero Current Detect Input	I_{in}	±5.0	mA
Restart Diode Current	I_{in}	5.0	mA
Power Dissipation and Thermal Characteristics D Suffix, Plastic Package Case 751K Maximum Power Dissipation @ T_A = 70°C Thermal Resistance, Junction−to−Air	 P_D $R_{\theta JA}$	 450 178	 mW °C/W
Operating Junction Temperature	T_J	150	°C
Operating Ambient Temperature	T_A	−25 to +125	°C
Storage Temperature Range	T_{stg}	−55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

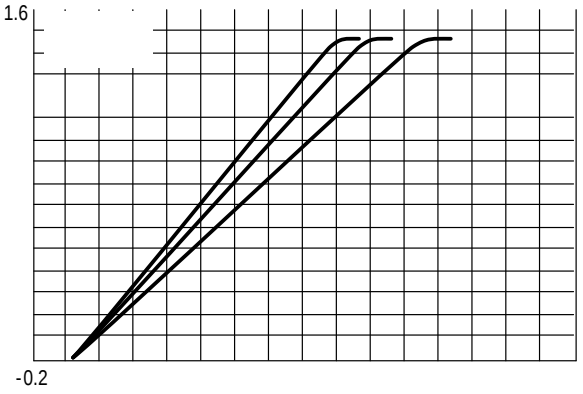
NOTE: ESD data available upon request.

ELECTRICAL CHARACTERISTICS (V_{CC} = 14.5 V, for typical values T_A = 25°C, for min/max values T_J = −25 to +125°C)

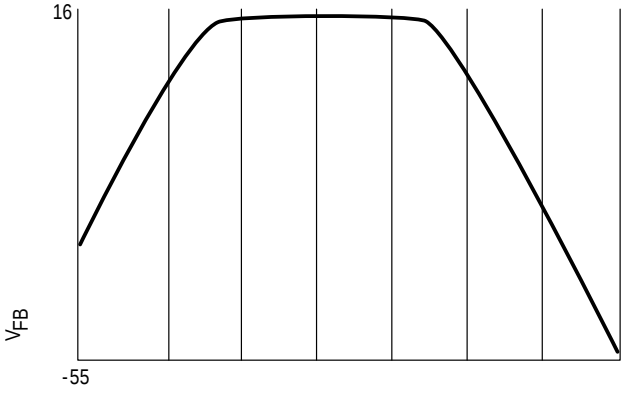
Characteristic	Symbol	Min	Typ	Max	Unit
ERROR AMPLIFIER					
Input Bias Current (V_{FB} = 5.0 V)	I_{IB}	−	0	1.0	μA

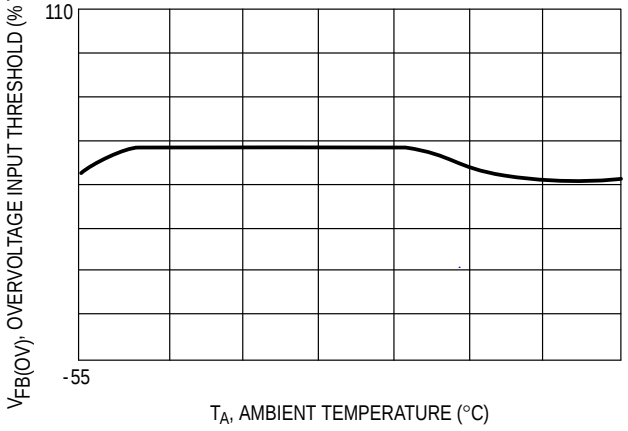
ELECTRICAL CHARACTERISTICS (continued) (V_{CC} = 14.5 V, for typical values T_A = 25°C, for min/max values T_J = –25 to +125°C)

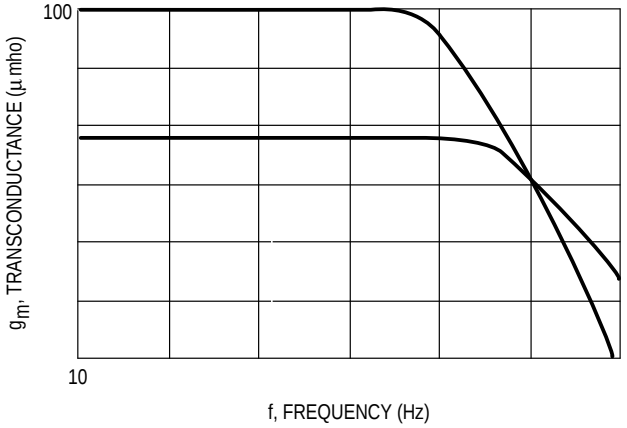
Characteristic	Symbol	Min	Typ	Max	Unit
DRIVE OUTPUT					
Source Resistance (Current Sense = 0 V, $V_{Gate} = V_{CC} - 1.0$ V) Sink Resistance (Current Sense = 3.0 V, V_{Gate} = 1.0 V)	R_{OH} R_{OL}				

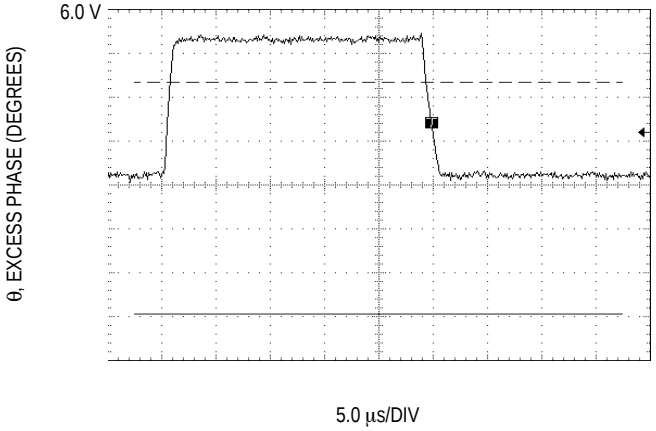

1.6
-0.2

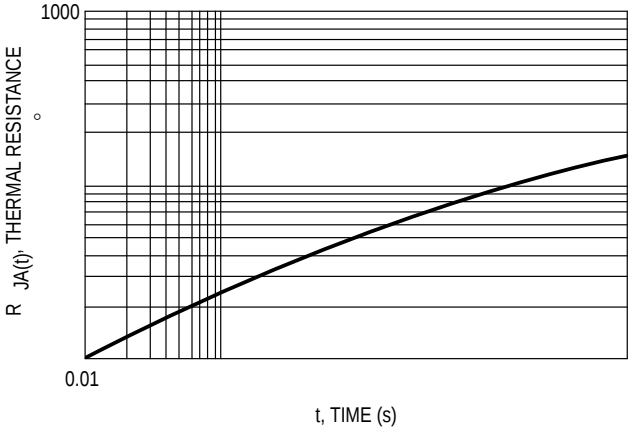

0.08
-0.12
V_{CS}, CURRENT SENSE PIN 6 THRESHOLD (V)
V_M, MULTIPLIER PIN 5 INPUT VOLTAGE (V)


16
-55
V_{FB}


110
-55
$V_{FB(OV)}$, OVERVOLTAGE INPUT THRESHOLD (% V)
T_A, AMBIENT TEMPERATURE (°C)


100
10
g_m, TRANSCONDUCTANCE (μ mho)
f, FREQUENCY (Hz)


6.0 V
θ, EXCESS PHASE (DEGREES)
5.0 μs/DIV


1000
0.01
R JA(t), THERMAL RESISTANCE °
t, TIME (s)

FUNCTIONAL DESCRIPTION

INTRODUCTION

Multiplier

$$I_{pk(max)} \approx \frac{1.5\ V}{R7}$$

–

Timer

$$\text{Pin 6 Threshold} \approx 0.55 \left[V_{Pin\ 4} - V_{Pin\ 3}\right] V_{Pin\ 5}$$

µ

Zero Current Detector

Undervoltage Lockout and Quickstart

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–

Restart Delay

–

Current Sense Comparator and RS Latch

–

$$I_{pk} \approx \frac{\text{Pin 6 Threshold}}{R7}$$

MC33368

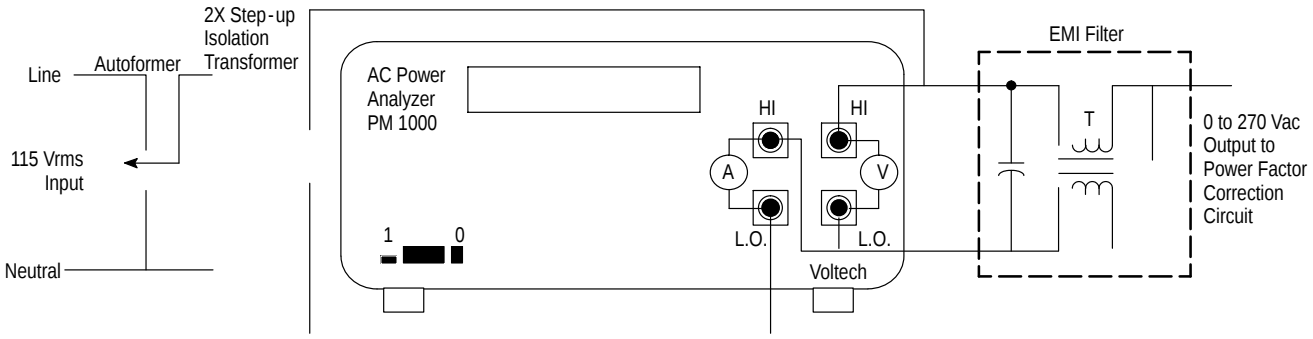
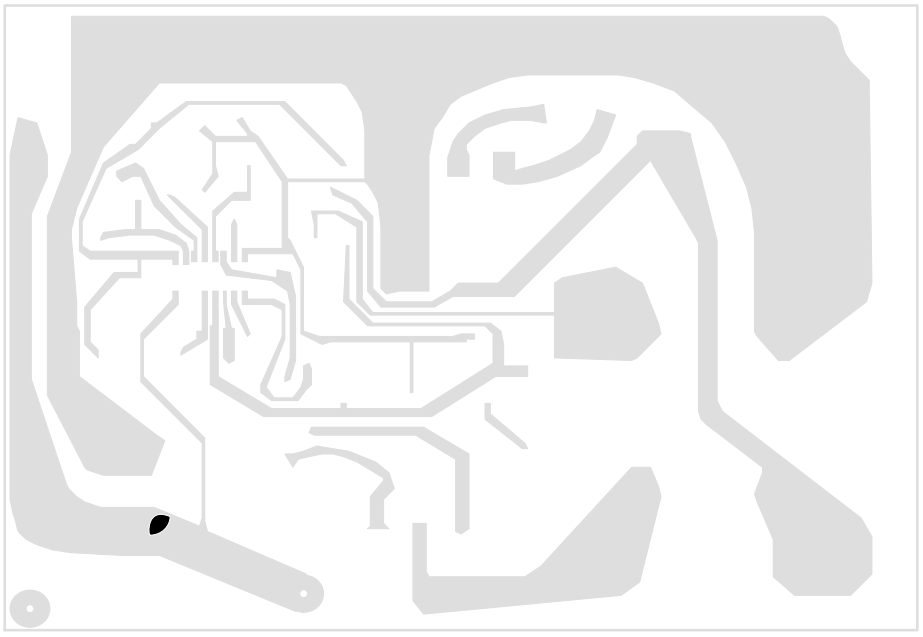
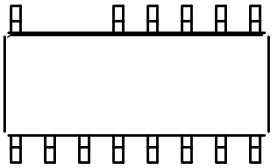


Figure 18. Power Factor Test Setup

MC33368





NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

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DIM	MIN	MA	MIN	MA
A	9.80	10.00	0.368	0.393
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC		0.050 BSC	
J	0.19	0.25	0.008	0.009
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019