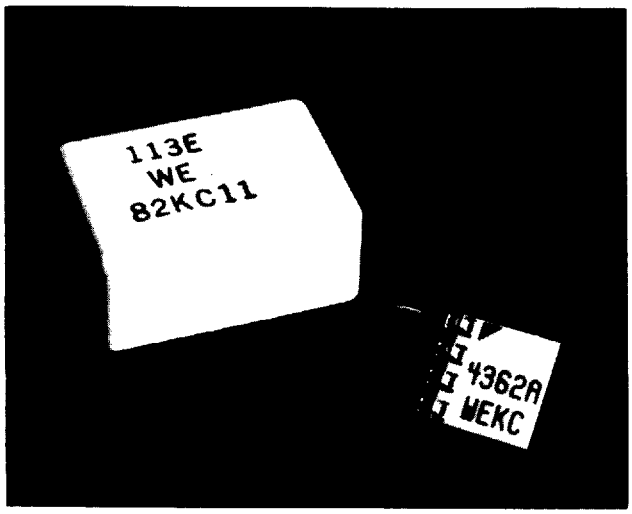
AT&T

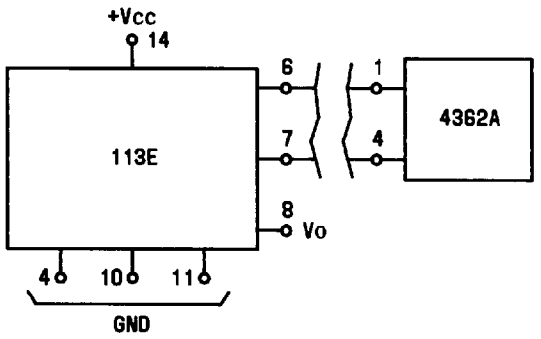
DATA SHEET

113E BOARD MOUNTED POWER MODULE AND 4362A NETWORK

T-57-11



LEAD FUNCTION DIAGRAM



DESCRIPTION

The 113E Board Mounted Power Module is, except for required input and output capacitors, a self-contained, low power (0.1W max.), nonisolated, dc-to-dc converter. Nominal input voltage is +5V with an output voltage of −76V to −184V. When used with the 4362A Remote Network, a temperature-dependent output voltage (−130V at 25°C and varying by −1.2 V/°C) is available for the avalanche photodetector (APD) bias required for the 1350B Optical Data Link Receivers.

If a fixed output voltage is desired, the power module can be used with an external resistor instead of the network. Depending on the external resistor used (1.5 kΩ to 4.5 kΩ), any output voltage in the range of −76V to −184V can be obtained. This permits the 113E Board Mounted Power Module to be used with the 1350A/C Receivers and makes the 1350A/C compatible with a single +5V supply.

The 113E Board Mounted Power Module contains a precision voltage reference, clock, pulse width modulation control circuit, and buck-boost power train. Other functions such as alarms, overload protection, undervoltage and overvoltage protection, and on/off switching must be provided externally.

FEATURES

- Fixed or temperature dependent output voltage
- Board mounted
- May power up to ten 1350B Receivers
- Temperature-dependent output provides constant gain for receivers using APDs
- Ambient temperature range of 0° to 70°C

August, 1984

ELECTRICAL CHARACTERISTICS

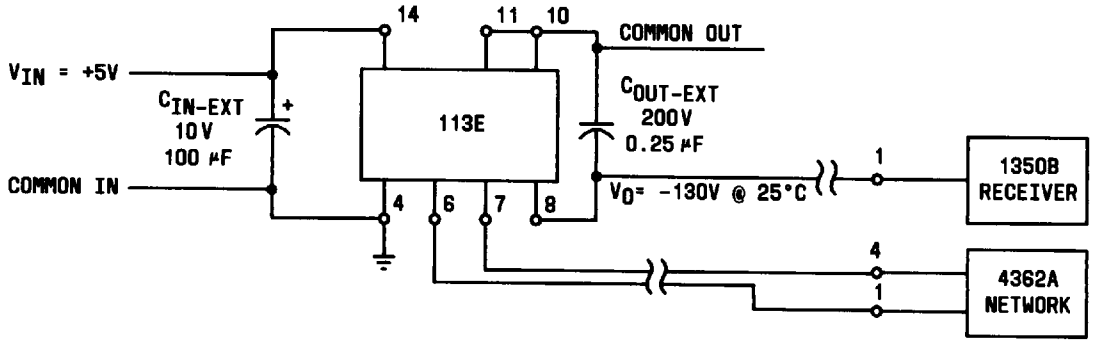
(VCC = 5V ± 10%, Operating Temperature 0 to 70°C)

Input Voltage	+5V ±10%
Output Voltage With 4362A Network	−130V +[1.2(25−T)] V ±5% at 25°C, ±10% elsewhere
Output Voltage With External Resistor	−76V to −184V (see graph) ±4% (plus tolerance of resistor)
Output Current	0 to 0.5 mA (current may exceed 0.5 mA under overload conditions)
Maximum Continuous Input Current	170 mA
Maximum Output Ripple	200 mV p-p, 40 mV rms using a 0.25 μF 200 V output capacitor
Switching Frequency	20.5 kHz
Operating Temperature Range	−20° to 70°C

OUTPUT VOLTAGE USING 4362A NETWORK

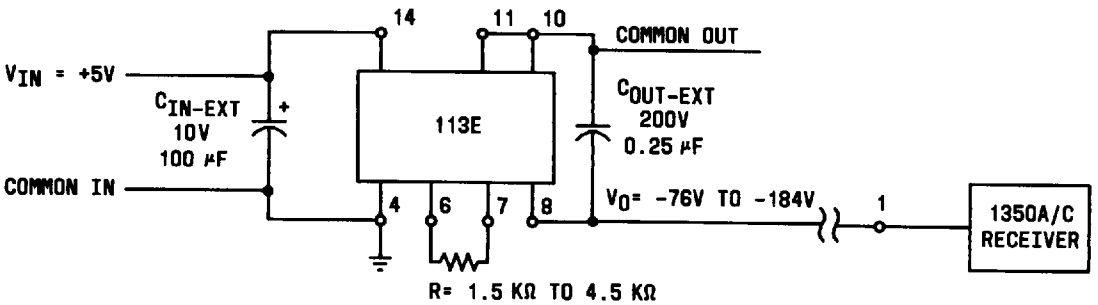
V_{OUT}	TEMPERATURE (°C)	IMPEDANCE (K)
−76	−20	4.100
−88	−10	3.500
−100	0	3.092
−112	10	2.760
−124	20	2.500
−130	25	2.375
−136	30	2.260
−148	40	2.060
−160	50	1.923
−172	60	1.800
−184	70	1.680

TYPICAL APPLICATION DIAGRAMS



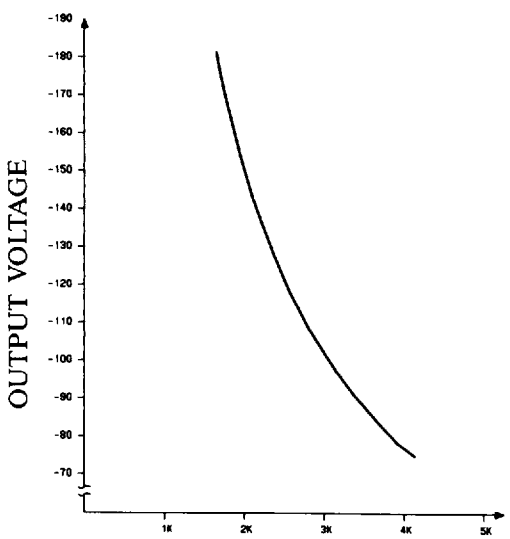
NOTE: 4362A NETWORK SHOULD BE MOUNTED AS CLOSE AS POSSIBLE TO THE 1350B RECEIVER CAPACITORS C_{IN-EXT} AND $C_{OUT-EXT}$ MUST BE MOUNTED WITHIN 1 INCH OF THE 113E POWER MODULE.

1350B Receiver Application

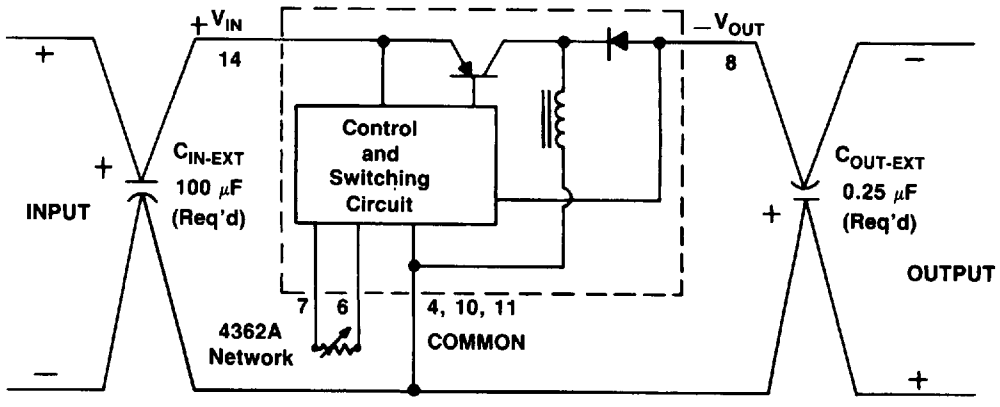


1350A/C Receiver Application

OUTPUT VOLTAGE WITH EXTERNAL RESISTOR

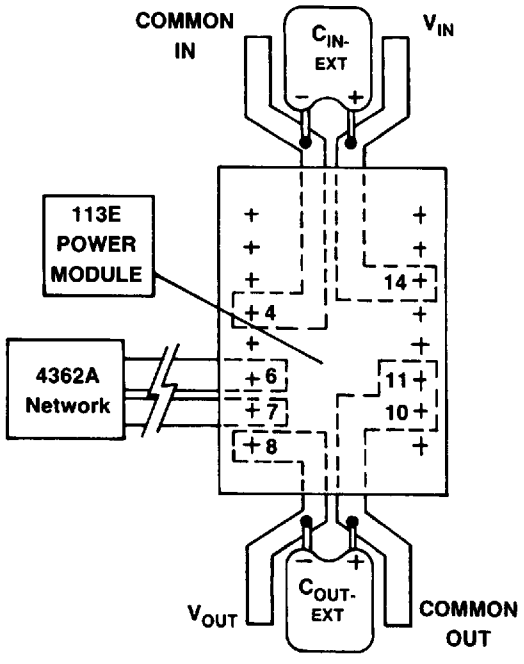


CONNECTION DIAGRAM



NOTE: All unused pins shall be soldered to the PWB with no electrical connections.

RECOMMENDED PRINTED WIRING BOARD LAYOUT

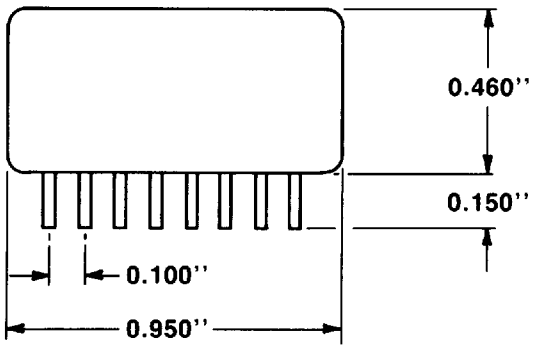


PACKAGING

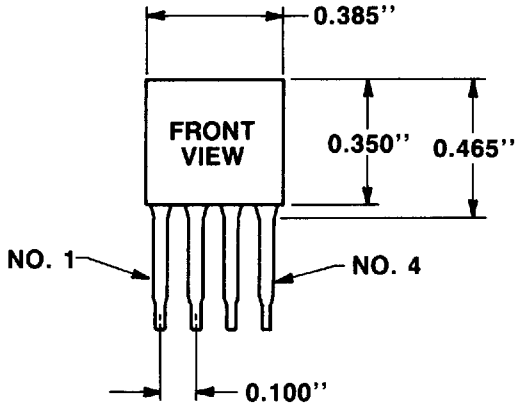
The 113E Board Mounted Power Module is housed in a 16-pin DIP-type package with an inserted height of 0.5 inches. The 4362A Network is a 4-terminal, thick-film, single in-line package (SIP) with a package depth of 0.35 inches and an inserted height of 0.465 inches.

OUTLINE DRAWINGS

(Dimensions in Inches)

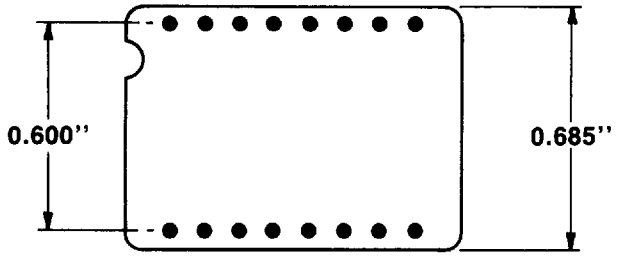


FRONT VIEW



(PACKAGE DEPTH 0.35'')

4362A Network



BOTTOM VIEW

113E Power Module