

HIGH TEMPERATURE POSITIVE LINEAR REGULATOR

HTPLREG

FEATURES

- Specified Over -55 to +225°C
- Output Current up to 500 mA
- Calibrated +15, +12, +10, and +5V Output
- Input Voltage up to 28V
- 1.5 mA Quiescent Current
- Current Limit Short Circuit Protection
- Hermetic 4-Pin Power Package

APPLICATIONS

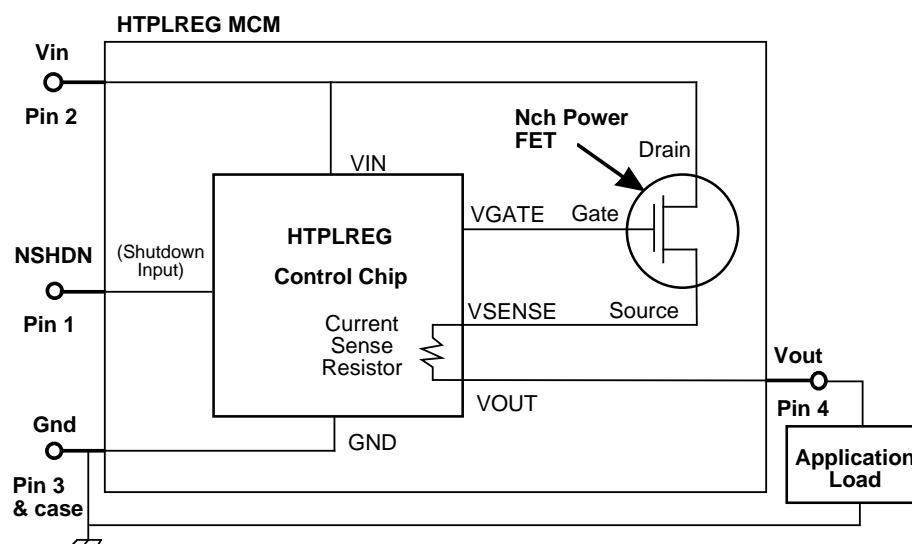
- Down-Hole Well
- Avionics
- Turbine Engine Control
- Industrial Process Control
- Nuclear Reactor
- Electric Power Conversion
- Heavy Duty Internal Combustion Engines

GENERAL DESCRIPTION

The HTPLREG is a hybrid linear regulator designed to operate over an extremely wide temperature range of -55 to +225°C. The regulator's control circuit is fabricated with Honeywell's dielectrically isolated high-temperature (HTMOS™) process. A silicon-on-insulator MOSFET is the power device. The HTPLREG is designed specifically for severe high-temperature applications such as down-hole oil well, aerospace, turbine engine and industrial control.

The HTPLREG is available with a calibrated +5, +12, +10, or +15V output. Output current is 500 mA over the specified temperature range, while quiescent current is 1.5 mA. Internal short circuit protection is provided. All parts are burned in to eliminate infant mortality. The HTPLREG is a high-reliability part designed specifically for applications with an extremely wide operating temperature range.

FUNCTIONAL DIAGRAM



HTPLREG

ELECTRICAL CHARACTERISTICS

+5V Output and TA = -55 to +225°C, unless otherwise specified

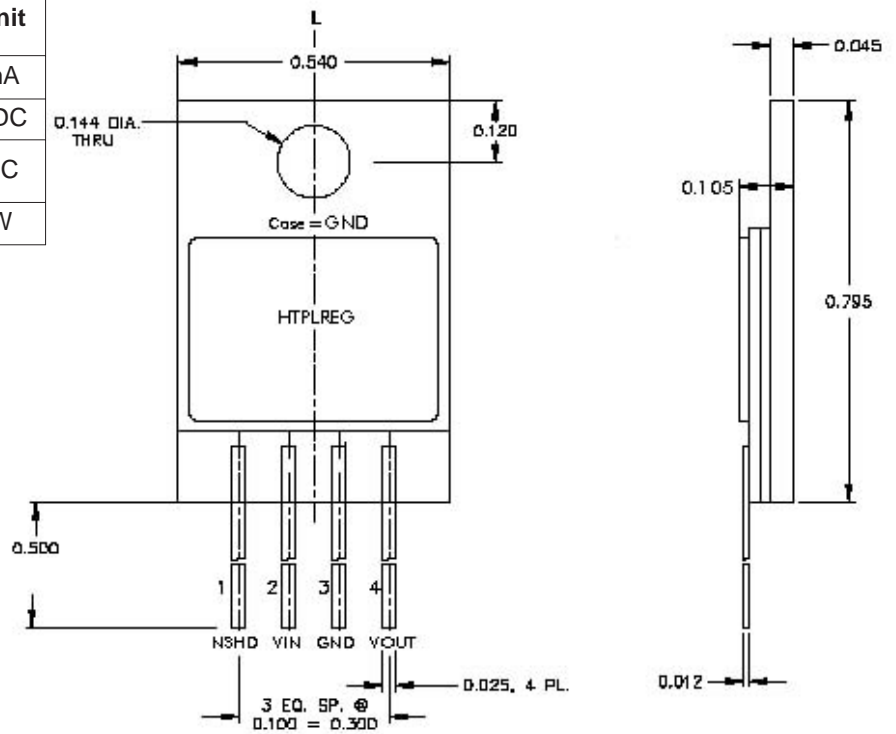
Parameter	Description	Conditions	Typical	Min.	Max.	Units
V _{OUT}	Output voltage; 0 mA ≤ I _{out} < 500mA					Volts
	HTPLREG05	8.0V ≤ V _{IN} ≤ 25V	5.00	4.75	5.25	
	HTPLREG10	13.0V ≤ V _{IN} ≤ 28V	10.00	9.50	10.50	
	HTPLREG12	15.0V ≤ V _{IN} ≤ 28V	12.00	11.40	12.60	
	HTPLREG15	18.0V ≤ V _{IN} ≤ 28V	15.00	14.25	15.75	
I _{STDBY}	Supply current, no load	V _{in} =10V, no load	—	0.6	1.5	mA
LINE_REG	Line regulation	I _{out} =50mA	—	60	—	dB
R _{OUT}	Output resistance	V _{in} =10V	—	—	0.30	Ohms
DROP_V	Dropout voltage	I _{out} =250mA	—	—	3.0	Volts
I _{LIMIT}	Current limit threshold	V _{IN} =10V	580	500	800	mA
I _{SHORT}	Short circuit current	V _{IN} =25V	650	400	1000	mA
SHUTDN_V	Shutdown threshold voltage on NSHDN pin.	V _{IN} =20V I _{out} =300mA	1.7	—	—	Volts
I _{IL_SHUTDN}	Shutdown pullup current	—	100	50	250	μAmps
NOISE	Output noise	I _{out} =500mA	—	—	2	mv/RMS
RIPPLE	Ripple rejection @ 120Hz	I _{out} =500mA	—	66	—	dB

ABSOLUTE MAXIMUM RATINGS (1)

Rating	Symbol	Value	Unit
Output Current	I _{OUT}	1.0	mA
Input Voltage	V _{IN}	+30	VDC
Storage Temperature	T _{ST}	-65 to +325	° C
Power Dissipation	P _d	6	W

(1) Stresses in excess of those listed above may result in permanent damage. These are stress ratings only, and operation at these levels is not implied. Frequent or extended exposure to absolute maximum conditions may affect device reliability.

PACKAGE DRAWING



ORDERING INFORMATION

Type	V _{IN}	V _{OUT}
HTPLREG05TC	8-25V	5V
HTPLREG10TC	13-28V	10V
HTPLREG12TC	15-28V	12V
HTPLREG15TC	18-28V	15V

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