E-Star Power Development Co., Ltd. (E-STAR)
1F., No.40, Juren Ln., Sec. 2, Sanmin Rd., Banciao Dist., New Taipei City 22069, Taiwan (R.O.C.)
Phone : 886-2-2957 5580 Fax : 886-2-2957 7473

150W Module DC to Dc power supply > CHB150W8

Features

- Efficiency Up to 90%
- Fixed Switching Frequency
- Regulated Outputs
- Remote On/Off
- Fully protected (OTP/OCP/OVP/UVLO)
- 1500Vdc I/O Isolation
- Operating Case Temperature -40 to +100℃
- Half Brick Size Meet Industrial Standard
  2.28×2.40x0.50
- UL60950-1 2nd Approval

E176177

MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		% EFF.			CAPACITOR LOAD MAX.
			MIN.	MAX.	NO LOAD	FULL LOAD	(1)	(2)	(3)	
CHB150W8-36S12	9-75 VDC	12 VDC	0 mA	12.5 A	60 mA	4.66 A	89.5	89.5	89.5	5000uF
CHB150W8-36S15	9-75 VDC	15 VDC	0 mA	10 A	60 mA	4.63 A	90	90	90	5000uF
CHB150W8-36S24	9-75 VDC	24 VDC	0 mA	6.25 A	60 mA	4.66 A	89.5	89.5	89	2000μF(4)
CHB150W8-36S28	9-75 VDC	28 VDC	0 mA	5.35 A	60 mA	4.63 A	90	90	89.5	1500uF(4)
CHB150W8-36S48	9-75 VDC	48 VDC	0 mA	3.13 A	60 mA	4.63 A	90	90.5	89.5	1000μF(4)

NOTE:

1. Nominal Input Voltage 36 VDC
2. Measured at 24Vin
3. Measured at 48Vin
4. The output terminal of 24, 28, 48Vout models required a minimum capacitor 100uF to maintain specified regulation
5. The input external capacitor recommend to parallel with 330uF ESR<0.7Ω to reduce the input ripple voltage

PART NUMBER

Series	Nominal Input Voltage	Number of Outputs	Nominal Output Voltage	Remote On/Off Logic
CHB150W8-	II	O	XX	L
CHB150W8	36: 36 VDC	S: Single	12: 12VDC 15: 15VDC 24: 24VDC 28: 28VDC 48: 48VDC	None: Positive N: Negative

Part Number Example:

CHB150W8-36S12N: Half Brick, 150W, 8:1 9-75Vdc Input, Single 12Vdc Output, Negative Logic

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TECHNICAL SPECIFICATIONS

(All specifications are typical at nominal input, full load at 25°C unless otherwise noted.)

ABSOLUTE MAXIMUM RATINGS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input Voltage	Continuous	All	-0.3		75	V_{dc}
Input Surge Voltage	100ms max.	All			100	V_{dc}
Operating Case Temperature	At the Center Part of Base Plate	All	-40		100	°C
Storage Temperature		All	-55		105	°C

INPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Operating Input Voltage		All	9	36	75	V_{dc}
Input Under Voltage Lockout						
Turn-On Voltage Threshold		All	8.5	9.0	9.5	V_{dc}
Turn-Off Voltage Threshold		All	7.5	8.0	8.5	V_{dc}
Lockout Hysteresis Voltage		All		1		V_{dc}
Maximum Input Current	V_{in}=9V, Full Load.	All		20		A
No-Load Input Current	V_{in}=36V, Io=0A	See Model Number Table				mA
Input Filter	LC filter.	All				
Inrush Current (I^2t)	As per ETS300 132-2.	All			1	A^2s
Input Reflected Ripple Current	P-P thru 10uH inductor, 5Hz to 20MHz.	All			50	mA
Recommended Input Fuse	Fast acting type	All		30		A
Input Capacitance (External)	<0.7Ω ESR	All		330		uF

OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Voltage Set Point Accuracy	V_{in}=36V, Full Load, Tc=25°C	All	-1.0		+1.0	%
Output Voltage Regulation						
Load Regulation	Full Load to No Load	All			±0.2	%
Line Regulation	V_{in}=High Line to Low Line, Full Load	All			±0.2	%
Temperature Coefficient	Tc=-40°C to 100°C	All			±0.03	%/°C
Output Voltage Ripple and Noise (5Hz to 20MHz bandwidth)						
Peak-to-Peak	Full load, 10uF tantalum and 1.0uF ceramic capacitors (for Vo=48V: Full Load 10uF aluminum and 1uF ceramic capacitors).	12Vo			120	mV
		15Vo			120	
		24Vo			280	
		28Vo			280	
		48Vo			480	
RMS.		12Vo			60	mV
		15Vo			60	
		24Vo			100	
		28Vo			100	
		48Vo			200	
Output Current Range	V_{in}= 9 to 36V	See Model Number Table				A
Over Current Protection	<90% Vo	All	105	160	200	%
Short Circuit Protection	Hiccup Mode. Auto Recovery.	All	Continuous, Auto Recovery.			
External Load Capacitance	Full load (Constant resistive load)	See Model Number Table				uF
Output Voltage Trim Range	Po≦max rated power, $I_o \leqq I_{o\_max}$	Others	-10		+10	%
	Vin=9-13V, Iout=max rated current	28Vo	-10		0	
	Vin=13-75V, Pout=max rated power, Iout=max rated current	28Vo	-10		+10	

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PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Remote Sense Range	Po≦max rated power, $I_o \leqq I_{o\_max}$ % of nominal Vo	All			+10	%
Over Voltage Protection	Limited Voltage, % of Nominal Vo	All	115	125	140	%

EFFICIENCY

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
100% Load	Vin=24V, 36V, 48V	See Model Number Table				%

DYNAMIC CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Current Transient						
Error Band	75% to 100% of I_{o_max} step load change d_i/d_t=0.1A/us (within 1% Vout nominal) Vin=24,36,48V; output Capacitance 100uF, 10uF solid tantalum and 1.0uF ceramic capacitors	All			±5	%
Recovery Time		All			500	us
Turn-On Delay and Rise Time	Full load (Constant resistive load)					
Turn-On Delay Time, From On/Off Control	$V_{on/off}$ to 90%V_{o_set}, Remote On	All		80	100	ms
Turn-On Delay Time, From Input	V_{in_min} to 90%V_{o_set}, Power Up	All		100	150	ms
Output Voltage Rise Time	10%V_{o_set} to 90%V_{o_se}	All		30	50	ms

ISOLATION CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Isolation Voltage (100% factory Hi-Pot tested @2sec.)	1 minute; Input to Output, input to case, output to case	All			1500	V_{dc}
Isolation Resistance	Input to Output	All	10			MΩ
Isolation Capacitance	Input to Output	48Vo		2500		pF
		Others		2300		
	Input to Case (Base Plate)	All		1000		
	Output to Case (Base Plate)	All		1000		

FEATURE CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Switching Frequency	Output Ripple Frequency	All	180	200	220	KHz
On/Off Control, Positive Remote On/Off logic, Refer to –Vin pin.						
Logic Low (Module Off)	$V_{on/off}$ at $I_{on/off}$=1.0mA	All	0		1.2	V
Logic High (Module On)	$V_{on/off}$ at $I_{on/off}$=0.0uA, Pin open=On	All	3.5		75	V
On/Off Control, Negative Remote On/Off logic, Refer to –Vin pin						
Logic High (Module Off)	$V_{on/off}$ at $I_{on/off}$=0.0uA, Pin open=Off	All	3.5		75	V
Logic Low (Module On)	$V_{on/off}$ at $I_{on/off}$=1.0mA	All	0		1.2	V
On/Off Current (for both remote on/off logic)	$I_{on/off}$ at $V_{on/off}$=0V	All			1	mA
Leakage Current (for both remote on/off logic)	Logic High, $V_{on/off}$=15V	All			1	mA
Off Converter Input Current	Shutdown input idle current	All		12	18	mA
Over Temperature Shutdown	Temperature at the Center Part of Base Plate, Non-Latching	All		105		°C
Over Temperature Recovery		All		95		°C

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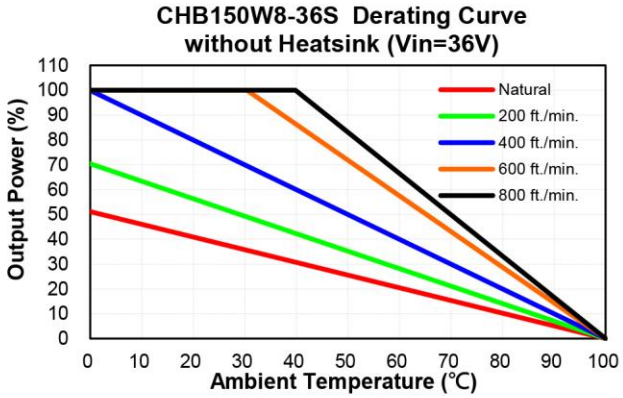
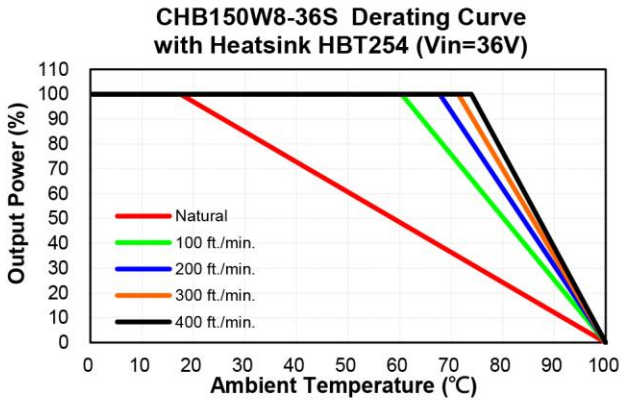
GENERAL SPECIFICATIONS

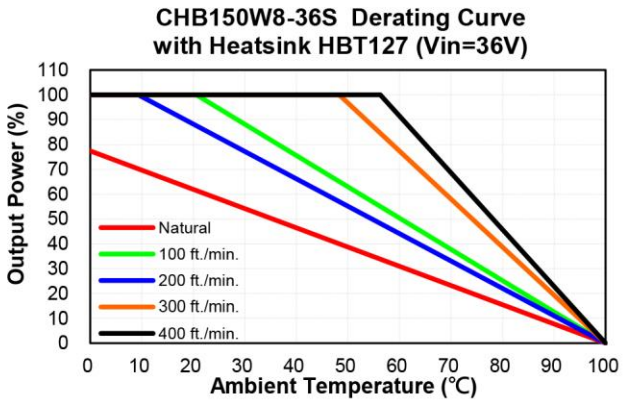
PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	I_o=100% of I_{o_max}; MIL-HDBK - 217F_Notice 1, GB, 25°C	All		800		K hours
Weight		All		109		grams
Case Material	Plastic, DAP, UL 94V-0					
Base plate Material	Aluminum					
Potting Material	UL 94V-0					
Pin Material	Base: Copper Plating: Nickel with Matte Tin					
Shock/Vibration	MIL-STD-810F Compliant					
Humidity	95% RH max. Non Condensing					
Altitude	2000m Operating Altitude, 12000m Transport Altitude					
Thermal Shock	MIL-STD-810F					
EMI	Meets EN55032 (with external filter)				Class A	

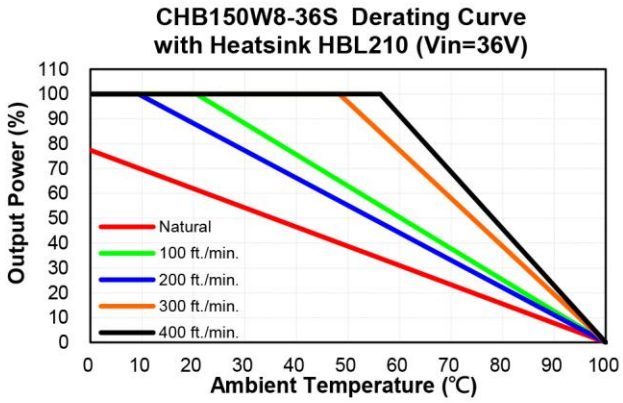
CHARACTERISTIC CURVE

Power Derating Curve









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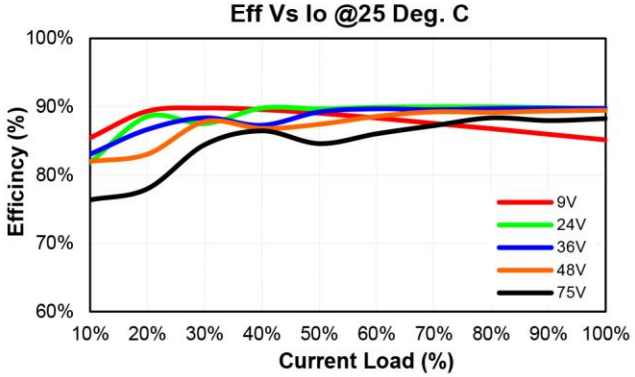
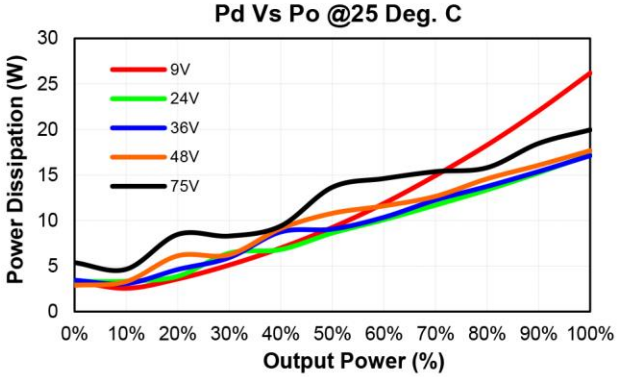
Performance Data

CHB150W8-36S12
Eff Vs Io @25 Deg. C



CHB150W8-36S12
Pd Vs Po @25 Deg. C



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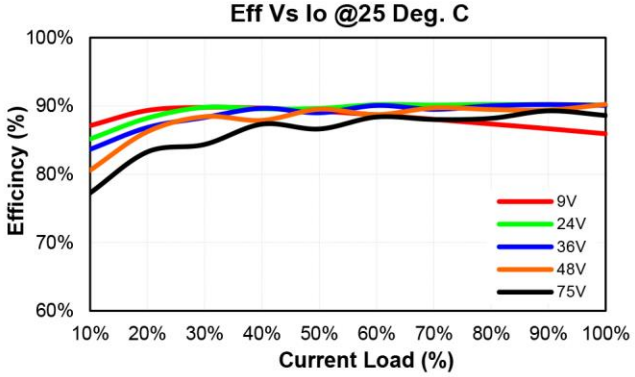

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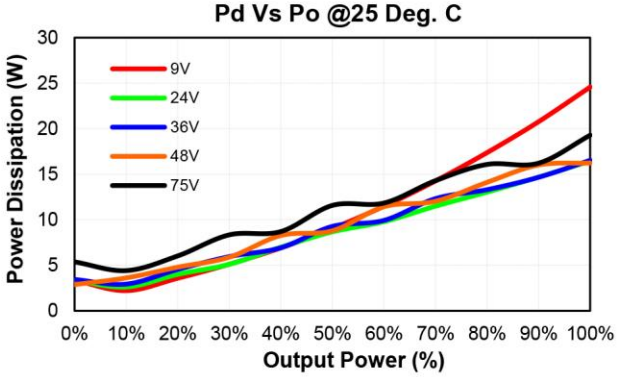
Pd Vs Po @25 Deg. C



CHB150W8-36S24
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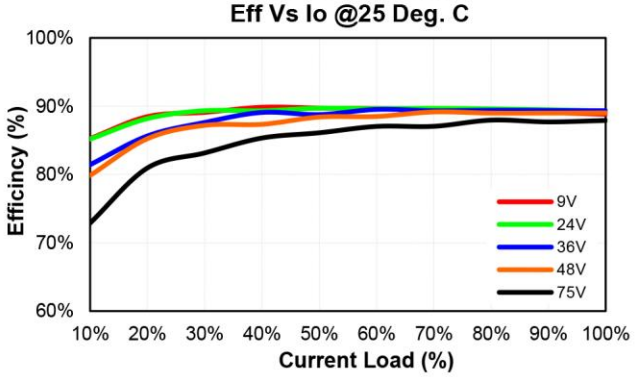
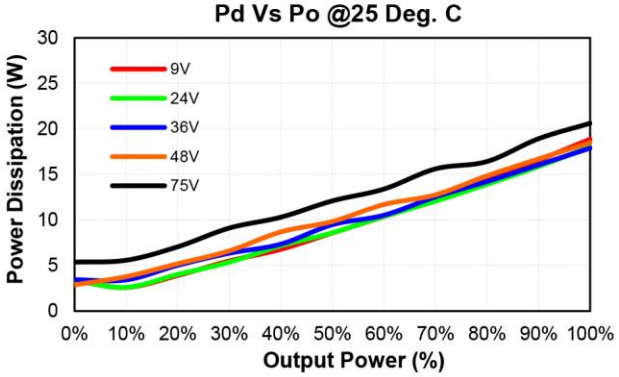
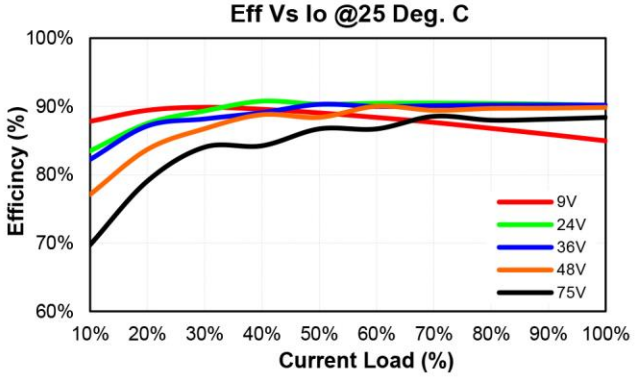


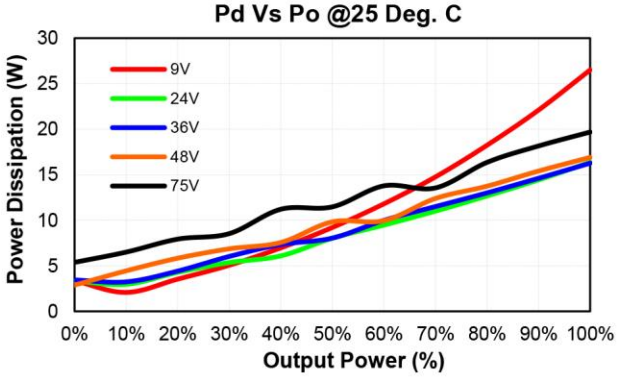
CHB150W8-36S24
Pd Vs Po @25 Deg. C



CHB150W8-36S28
Eff Vs Io @25 Deg. C



CHB150W8-36S28
Pd Vs Po @25 Deg. C



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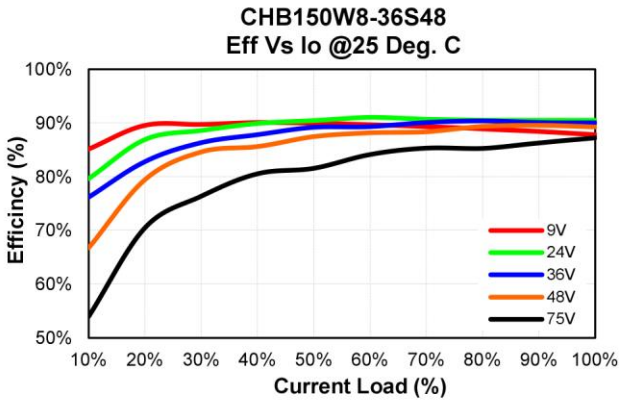
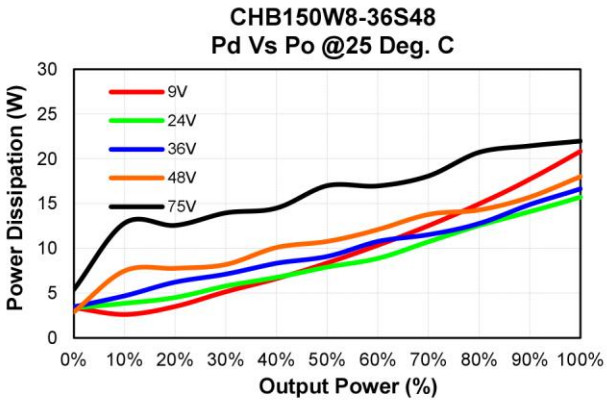




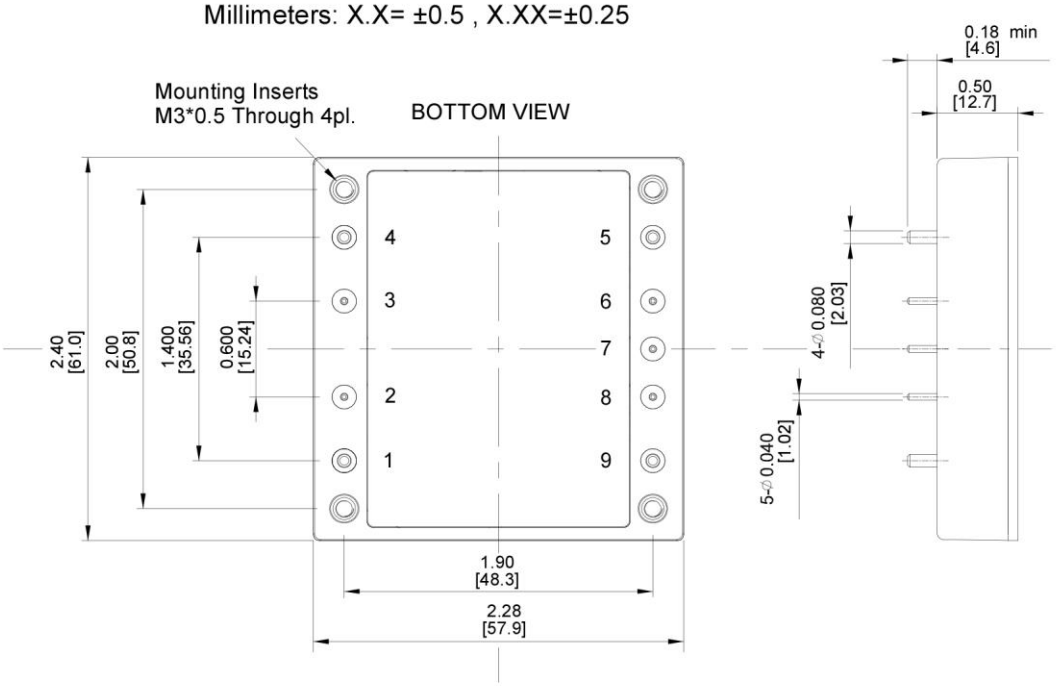
MECHANICAL SPECIFICATION

CASE HB

All Dimensions In Inches(mm)

Tolerances Inches: X.XX= ±0.02 , X.XXX= ±0.010

Millimeters: X.X= ±0.5 , X.XX=±0.25



Pin	Function
1	+V Input
2	On/Off
3	CASE
4	-V Input
5	-V Output
6	-Sense
7	Trim
8	+Sense
9	+V Output