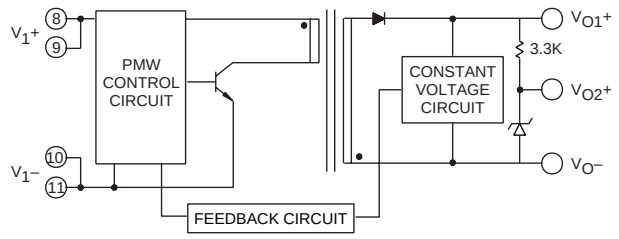
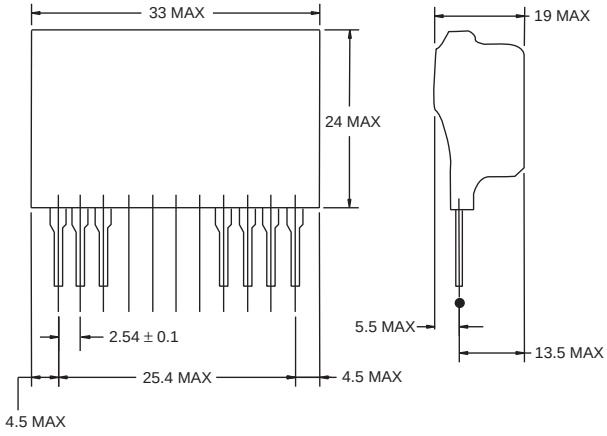
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (724) 925-7272

DC-to-DC Converter

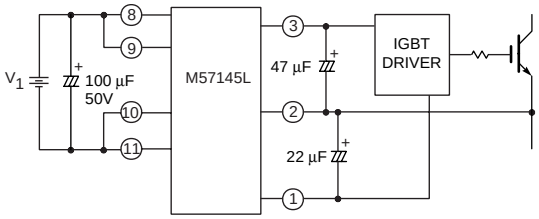
Block Diagram



Outline Drawing



Test Circuit



Hybrid Gate Drive Power Supply

Description:
M57145L-01 is a DC-to-DC converter designed to provide isolated power for IGBT gate drive. When supplied with an input voltage of 12V to 18V DC the M57145L-01 will produce a +15.8V / -8.2V output suitable for use with Powerex hybrid IGBT gate drivers. The isolation between the primary and secondary of the M57145L-01 has been optimized to provide the high dv/dt noise immunity required in IGBT power circuits.

Features:
- ☐ Wide Input Voltage Range: 12V to 18V DC
- ☐ Isolated, Regulated Output: 24 V_{DC} @ 100mA
- ☐ Output Over Current Protection
- ☐ Built-in 8.2V Off-bias Supply Regulator
- ☐ Primary to Secondary Isolation 2500 V_{RMS}
- ☐ Small Footprint – SIP Design

Applications:
Isolated power supply for Powerex hybrid IGBT gate drivers: M57957L, M57958L, M57159L, M57959L, M57962L, and M57962CL in general purpose inverters, AC servo, and power supply applications.

Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (724) 925-7272

M57145L-01
DC-to-DC Converter
Hybrid Gate Drive Power Supply

Absolute Maximum Ratings, T_a = 25°C unless otherwise specified

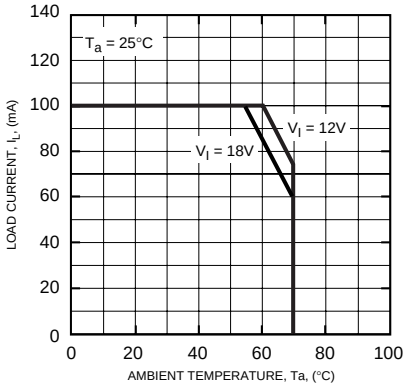
Item	Symbol	Test Conditions	Limit	Units
Input Voltage	V_I	—	18	Volts
Load Current 1	I_{L1}	③ pin Output Current	100*	mA
Operating Temperature	T_{opr}	No Condensation	-10 ~ 70	°C
Storage Temperature	t_{stg}	No Condensation	-20 ~ 85	°C
Electrical Isolation between Input and Outputs	V_{RMS}	Sinewave Voltage, 60Hz, 1 min.	2500	Volts

Electrical Characteristics, T_a = 25°C, V_{IN} = 15V unless otherwise specified

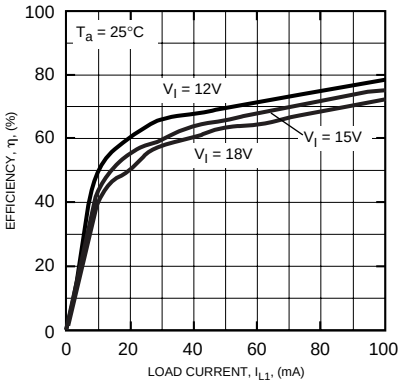
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Input Voltage	V_I	Recommended Range	12	—	18	Volts
Output Voltage 1	V_{O1}	③ pin Voltage, I_O = 0 ~ 60mA	22.8	24.0	25.2	Volts
Output Voltage 2	V_{O2}	② pin Voltage, No Load of ②, ③ pins	7.96	8.2	8.43	Volts
Input Regulation	Reg-I	I_L = 60mA, V_1 = 12 ~ 18V, No Load of ② pin	—	—	50	mV
Load Regulation	Reg-L	I_L = 0 ~ 60mA, No Load of ② pin	—	—	50	mV
Efficiency	η	I_L = 60mA, No Load of ② pin	—	68	—	%

*Refer to the Derating Characteristic Curve.

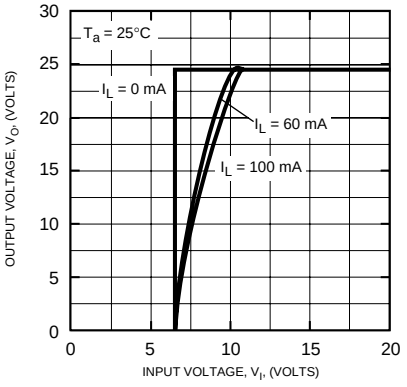
LOAD CURRENT DERATING CHARACTERISTIC



EFFICIENCY VS. LOAD CURRENT



OUTPUT VOLTAGE VS. INPUT VOLTAGE



INPUT CURRENT VS. INPUT VOLTAGE