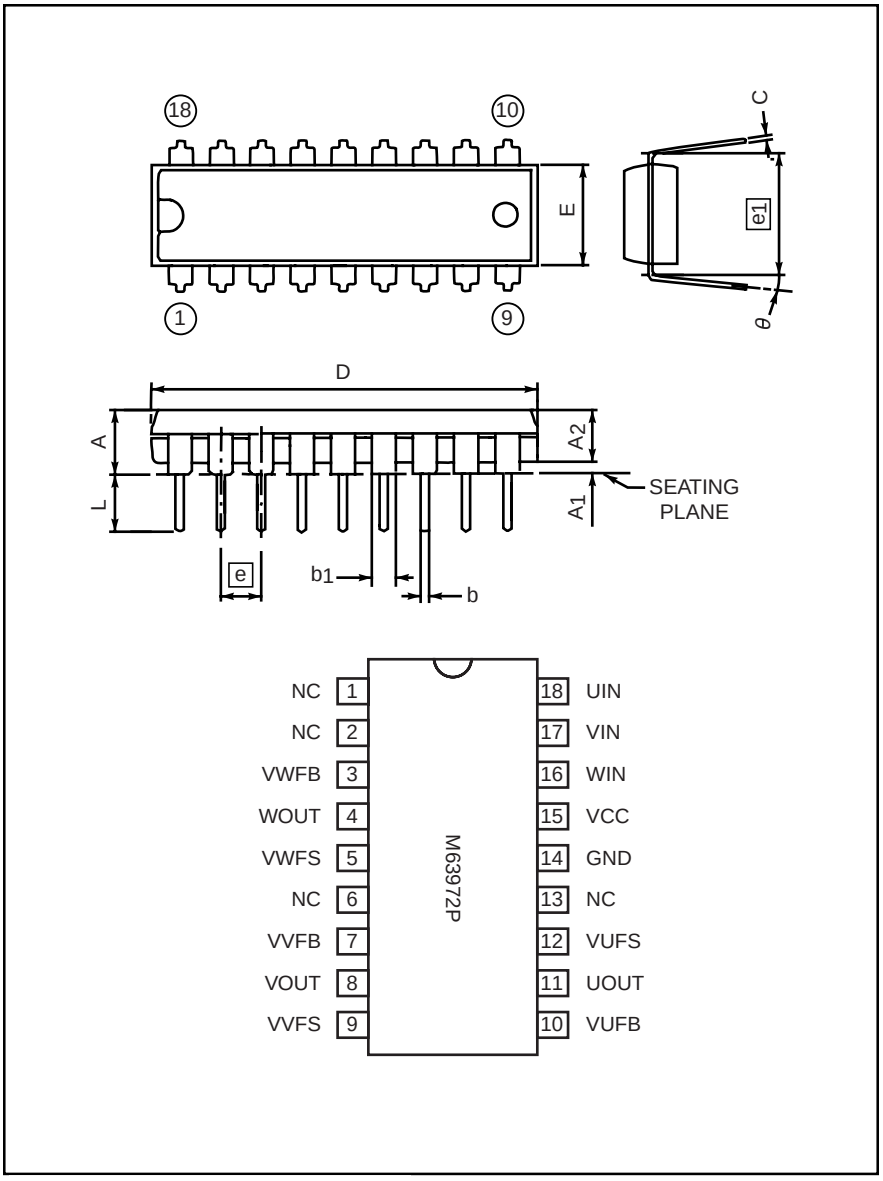
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (724) 925-7272

HVIC
High-Side Driver



Outline Drawing and Pin Diagram

Dimensions	Inches	Millimeters
A	0.18 Max.	4.5 Max.
A_1	0.02 Min.	0.51 Min.
A_2	0.13	3.3
b	0.02±0.004	0.5±0.1
b_1	0.06+0.01/-0.004	1.5+0.3/-0.1
c	0.01	0.27+0.07/-0.05

Dimensions	Inches	Millimeters
D	0.94±0.01	24.0±0.2
E	0.25±0.01	6.3±0.15
e	0.10	2.54
e1	0.31	7.62
L	0.12 Min.	3.0 Min.
θ	0° – 15°	0° – 15°

Description:
M63972P is a high voltage, triple high side Power MOSFET/IGBT driver for three-phase applications.

Features:
- ☐ 600V Floating Supply Voltage
- ☐ ±300mA Output Current
- ☐ High Side Driver
- ☐ DIP–18 Package

Application:
- ☐ Appliances
- ☐ Air Conditioners
- ☐ AC Servo Motors
- ☐ Inverters
- ☐ General Purpose Power Supplies

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

Ratings	Symbol	Test Conditions	M63972P	Units
Supply Voltage	V_{CC}		-0.5 ~ 20	Volts
High Side Floating Supply Voltage	V_B	U_{FB}, V_{FB}, W_{FB}	-0.5 ~ 620	Volts
High Side Floating Supply Offset Voltage	V_S	U_{FS}, V_{FS}, W_{FS}	V_B-20/+0.5	Volts
Output Voltage	V_{OUT}	U_{OUT}, V_{OUT}, W_{OUT}	V_S-0.5 ~ V_B+0.5	Volts
Output Current	I_{OUT}	U_{OUT}, V_{OUT}, W_{OUT}	±300	mA
Logic Input Voltage	V_{IN}	U_{IN}, V_{IN}, W_{IN}	-0.5 ~ 5.5	Volts
Allowable Offset Supply Voltage Transient	d_{VS}/d_t	U_{FS}, V_{FS}, W_{FS}–GND	±50	V/ns
Package Power Dissipation	P_t	T_a = 25°C, On Board	1.61	W
Linear Derating Factor	$K\theta$	T_a > 25°C, On Board	-16.1	mW/°C
Junction Temperature	T_j		-20 ~ 125	°C
Operation Temperature	T_{opr}		-20 ~ 75	°C
Storage Temperature	T_{stg}		-40 ~ 125	°C

* All voltage parameters are absolute voltages referenced to GND.

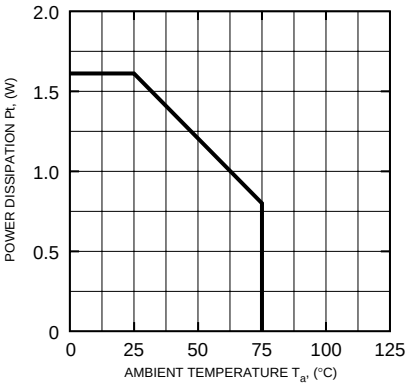
Recommended Operating Conditions

Ratings	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Supply Voltage	V_{CC}	—	13.5	15.0	16.5	Volts
High Side Floating Supply Offset Voltage	V_S	U_{FS}, V_{FS}, W_{FS}	-5	—	400	Volts
High Side Floating Supply Voltage	V_{BS}	U_{FB}–U_{FS}, V_{FB}–V_{FS}, W_{FB}–W_{FS}	13.5	15.0	16.5	Volts
Logic Input Voltage	V_{IN}	U_{IN}, V_{IN}, W_{IN}	0	—	5	Volts

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Floating Supply Leakage Current	I_{FS}	V_B = V_S = 600V, @ One Phase	—	—	10	µA
V_{CC} Supply Standby Current	I_{CC}		—	0.75	1.5	mA
V_{BS} Supply Standby Current	I_{BS}	@ One Phase	—	0.5	1.0	mA
High Level Output Voltage	V_{OH}	I_O = 0A, U_{OUT}, V_{OUT}, W_{OUT}	14.9	—	—	Volts
Low Level Output Voltage	V_{OL}	I_O = 0A, U_{OUT}, V_{OUT}, W_{OUT}	—	—	0.1	Volts
High Level Output Current	I_{OH}	V_O = 10V, U_{OUT}, V_{OUT}, W_{OUT}	-120	-85	-50	mA
Low Level Output Current 1	I_{OL1}	V_O = 1V, U_{OUT}, V_{OUT}, W_{OUT}	25	40	60	mA
Low Level Output Current 2	I_{OL2}	V_O = 5V, U_{OUT}, V_{OUT}, W_{OUT}	50	90	125	mA
Output Threshold Voltage	V_{Oth}	U_{OUT}, V_{OUT}, W_{OUT}	1.5	2.5	3.8	Volts
High Level Input Threshold Voltage	V_{IH}	U_{IN}, V_{IN}, W_{IN}	2.5	3.0	4.0	Volts
Low Level Input Threshold Voltage	V_{IL}	U_{IN}, V_{IN}, W_{IN}	0.8	1.4	2.0	Volts
Input Pull-Up Resistance	R_{IN}	U_{IN}, V_{IN}, W_{IN}	25	50	100	kΩ
VBS Supply UV Trip Voltage	V_{BSUVT}		10.1	10.8	11.6	Volts
VBS Supply UV Reset Voltage	V_{BSUVR}		10.6	11.4	12.1	Volts
VBS Supply Filter Time	t_{VBSUV}		—	7.5	—	µs
Turn-On Propagation Delay	t_{dLH}		0.15	0.30	0.50	µs
Turn-Off Propagation Delay	t_{dHL}		0.15	0.30	0.50	µs

THERMAL DERATING FACTOR CHARACTERISTICS (TYPICAL)



BLOCK DIAGRAM