Preliminary Data Sheet No. PD-5.018A

INTERNATIONAL RECTIFIER IOR

T-39-27

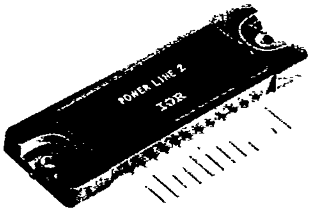
HEXFET® Power Module

CPX300-Series 3-Phase Bridges

The CPX300 series of HEXFET power modules are intended for users of fractional horsepower DC brushless motors. Connected in a 3-phase bridge configuration, they are offered in voltages from 60 to 100V, with current ratings from 5 to 19 amperes.

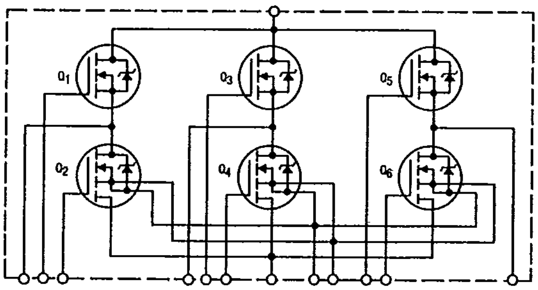
The CPX300 series simplifies circuit design and construction by replacing 6 discrete devices with a single, tested part; while at the same giving the added advantages of electrical isolation and simplified thermal management. In addition, the low-side switches feature HEXSense current-sense die, giving the user lossless current sensing capability!

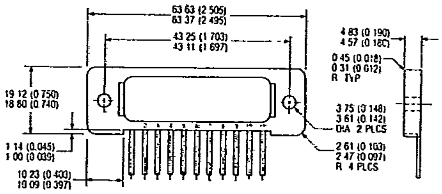
Powerline 2



Leadframe-based, electrically isolated power SIP

Schematic





Dimensions in Millimeters and (Inches)

Absolute Maximum Ratings

Parameter	Device		Units	Notes
	CPX303D	CPX313D		
Breakdown Voltage	60	100	V	
Gate-to-Source Voltage	±20		V	
Continuous Current	19.1	8.5	A	All devices conducting, $T_C = 25°C$
	17.5	7.8	A	All devices conducting, $T_C = 45°C$
	12.1	5.4	A	All devices conducting, $T_C = 100°C$
Operating and Storage Temperature	-30 to +150		°C	
Lead Temperature	+300		°C	0.063" (1.6 mm) from case for 10 sec
Mounting Torque	3.0 (0.337)		lbf • in (N • m)	Pan Head Screw, non-lubricated threads

HEXFET Electrical Characteristics @ T_C = 25°C (Unless Otherwise Specified)

		Device		Units	Test Conditions
		CPX303D	CPX313D		
BV_{DSS}	Min. Drain Source Breakdown Voltage	60	100	V	V_{GS} = 0, I_D = 250 µA
$R_{DS(on)}$	Max. Static Drain-Source On-State Resistance of Die ①	0.05	0.18	Ω	V_{GS} = 10V
$V_{GS(th)}$	Gate Threshold Voltage	2.0 to 4.0		V	V_{DS} = V_{GS}, I_D = 250 µA
I_{GSS}	Max. Gate Source Leakage, Forward and Reverse	500		nA	V_{GS} = 20V
I_{DSS}	Max. Zero Gate Voltage Drain Current	250		µA	V_{DS} = Max. Rating, V_{GS} = 0V
		1000		µA	V_{DS} = 0.8 (Max. Rating), V_{GS} = 0V, T_C = 125
Q_g	Max. Total Gate Charge	30	30	nC	
V_{SD}	Max. Diode Forward Voltage	1.6	2.5	V	
t_{rr}	Diode Recovery Time	160	360	ns	@ dlf/dt = 100 A/µs
Q_{RR}	Max. Diode Recovery Charge	1.5	2.1	µC	@ dlf/dt = 100 A/µs
For test conditions and other die related information, consult these data sheets:		IRFZ34 IRCZ34	IRF530 IRC530	—	

Thermal Resistance:

R_{thJC}	Thermal Resistance, Junction-to-Case	3.8	5.3	°C/W	Each Device, typical

① Pulse Test: Pulse Width ≤ 300 µs. Duty Cycle ≤2%.

The CPX300 series can be manufactured with different voltages, on-resistances, current-sensing HEXSENSE® die, and other components to suit your individual requirements. Contact IR and ask about our semi-custom capabilities.

The CPX300 series will be available February, 1988.