INTERNATIONAL RECTIFIER

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T-39-27

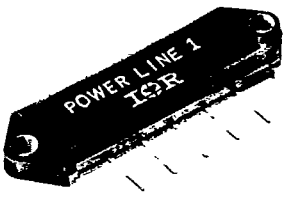
HEXFET® Power Module

CPY100-Series Power Half-Bridges

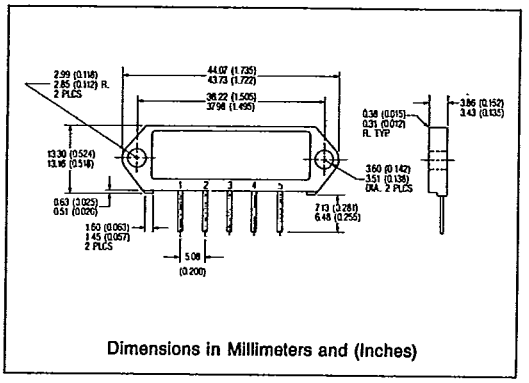
The CPY100 series of power modules are half-bridge configured HEXFETs, in a practical, heat-sinkable electrically isolated SIP (single in-line) package. The series is available in a variety of voltages, on-resistances, and current ratings to satisfy almost any design requirement in medium-power power supplies, motor drives, amplifiers, etc.

Contained in a compact 0.5″ × 1.75″ × 0.15″ package, these modules feature voltage ratings of 250 and 500 volts, with on-resistances ranging from 0.40 down to 0.12 ohms. A single CPY100 module replaces two TO-3 type HEXFETs, and can handle up to 20 amperes. The CPY100 series offers the designer tremendous height savings, electrical isolation, simpler construction, and rugged, avalanche-rated HEXFETs.

Powerline 1 Package

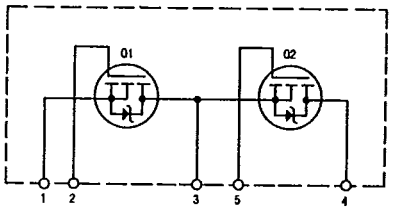


Thick film, electrically isolated power SIP



Dimensions in Millimeters and (Inches)

Schematic



MODULE DEVICES

Absolute Maximum Ratings

Parameter	Device		Units	Notes
	CPY135A	CPY155A		
Breakdown Voltage	250	500	V	
Gate-to-Source Voltage	±20		V	
Continuous Current	19	11	A	All devices conducting, T_C = 25°C
	17.5	10.5	A	All devices conducting, T_C = 45°C
	12	7	A	All devices conducting, T_C = 100°C
Pulsed Drain-to-Source Current	88	52	A	Any single device, limited by Junction Temperature
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
		CPY135A	CPY155A		
BV_{DSS}	Max. Drain Source Breakdown Voltage	250	500	V	V_{GS} = 0, I_D = 250 μA
$R_{DS(on)}$	Max. Static Drain-Source On-State Resistance of Die ①	0.14	0.40	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
g_{fs}	Min. Forward Transconductance	11	8.7	S (℧)	
$t_{d(on)}$	Max. Turn-On Delay Time	29	27	ns	
t_r	Max. Rise Time	130	66	ns	BV_{DD} = 0.5 (BV_{DSS})
t_f	Max. Fall Time	98	60	ns	
Q_g	Max. Total Gate Charge	130	130	nC	
V_{SD}	Max. Diode Forward Voltage	1.8	1.4	V	
t_{rr}	Diode Recovery Time	650	1800	ns	@ dIf/dt = 100 A/μs
Q_{RR}	Max. Diode Recovery Charge	8.4	11	μC	@ dIf/dt = 100 A/μs
For test conditions and other detailed information, consult these data sheets.		IRF254	IRF450	—	

Thermal Resistance:

R_{thJC}	Thermal Resistance, Junction-to-Case	1.0	1.0	°C/W	Each Device, typical

① Pulse Test: Pulse Width ≤ 300 μs. Duty Cycle ≤2% — not on original.

The CPY100 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 minimum order quantities.

CPY100 series devices will be available December, 1987.