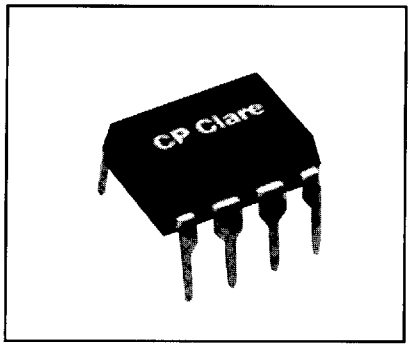
OptoMOS® Solid State MOSFET Driver



DESCRIPTION

CP Clare's FDA MOSFET driver couples infrared light emitting diodes with a pair of proprietary photovoltaic integrated circuits. In addition to providing voltage for turn-on of discrete MOSFETs, these patented ICs feature a gate-clamping circuit to provide fast turn-off. The FDA offers a significant reduction in drive circuit complexity, board-space, and cost over alternate techniques for isolated switching of MOSFETs. Used in conjunction with discrete MOSFETs the FDA is ideal for use in programmable controls, process control, instrumentation and telecommunications, replacing TRIAC/drivers, mechanical relays, and bipolar components.

FEATURES

- Optically-Isolated Input to Output
- May be Configured for AC and DC Switching
- 2mA Control Current
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable
- Surface Mount and Tape & Reel Version Available
- Dual Independent, Floating Outputs for Parallel, Series, or Isolated Configuration
- Replacement of Discrete Components
- Solid State Reliability

APPLICATIONS

- MOSFET Driver
- Programmable Control
- Process Control
- Instrumentation
- Replace TRIAC Drivers

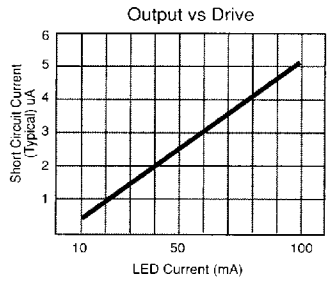
RATINGS (@ 25°C)

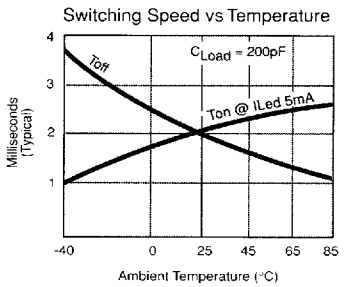
Parameter	Min	Typ	Max	Units
Input Power Dissipation	—	—	150[1]	mW
Input Control Current	—	—	100	mA
Peak (10mSec)	—	—	1	A
Reverse Input Voltage	—	—	5	V
Power Dissipation				
Total Package Dissipation	—	—	800[2]	mW
Capacitance				
Input to Output	—	3	—	pF
Isolation Voltage				
Input to Output	2500	—	—	V_{RMS}
"E" Suffix (Optional)	3750	—	—	V_{RMS}
Operating Temperature	-40	—	85	°C
Storage Temperature	-40	—	125	°C
Soldering Temperature (10 Seconds Max)	—	—	260	°C

[1] Derate Linearly 1.33 mW/°C.
[2] Derate Linearly 6.67 mW/°C.

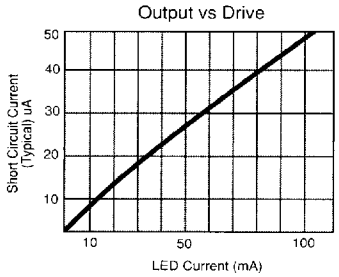
Performance Data

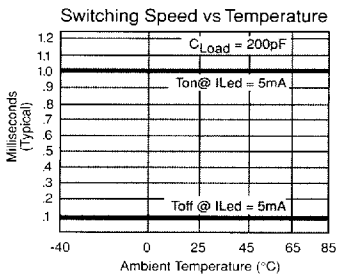
FDA 200





FDA 210





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Specifications **Output Characteristics @ 25°C**

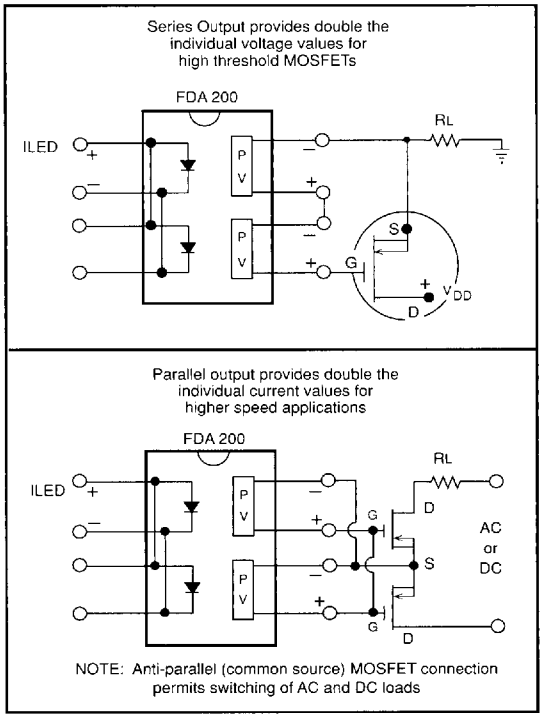
Part Number		FDA200	FDA210	Units
Load Voltage		10	10	V
Load Current		1	1	µA
Open Circuit Voltage				
I_{LED} = 2mA	Typ	10	6	V
	Max	14	10	
I_{LED} = 5mA	Typ	12	7.5	
	Max	14	10	
Short Circuit Current				
I_{LED} = 2mA	Min	0.1	0.6	µA
	Typ	0.2	0.8	
I_{LED} = 100mA	Min	2.5	40	
	Typ	5	45	
Turn On Time				
I_{LED} = 5mA	Typ	2	1	mS
	Max	5	5	
Turn Off Time				
I_{LED} = 5mA	Typ	2	0.07	mS
	Max	5	5	
Off-State Clamping Resistance	Typ	5	5	kΩ
	Max	50	50	

Input Characteristics @ 25°C

Input Control Current I_{LED}	Typ	1	1	mA
	Max	2	2	
Input Voltage Drop				
	Min	0.9	0.9	V
V_F @ 5mA	Typ	1.2	1.2	
	Max	1.4	1.4	
Reverse Input Voltage	Max	5	5	V
Reverse Input Current	Max	10	10	µA
Input to Output Capacitance	Typ	3	3	pF
Input to Output Isolation		2500	2500	V_{RMS}
With "E" Suffix (optional)		3750	3750	

▶ **NOTE:**
For Mechanical Dimensions refer to page 20.

Applications



Equivalent Circuit