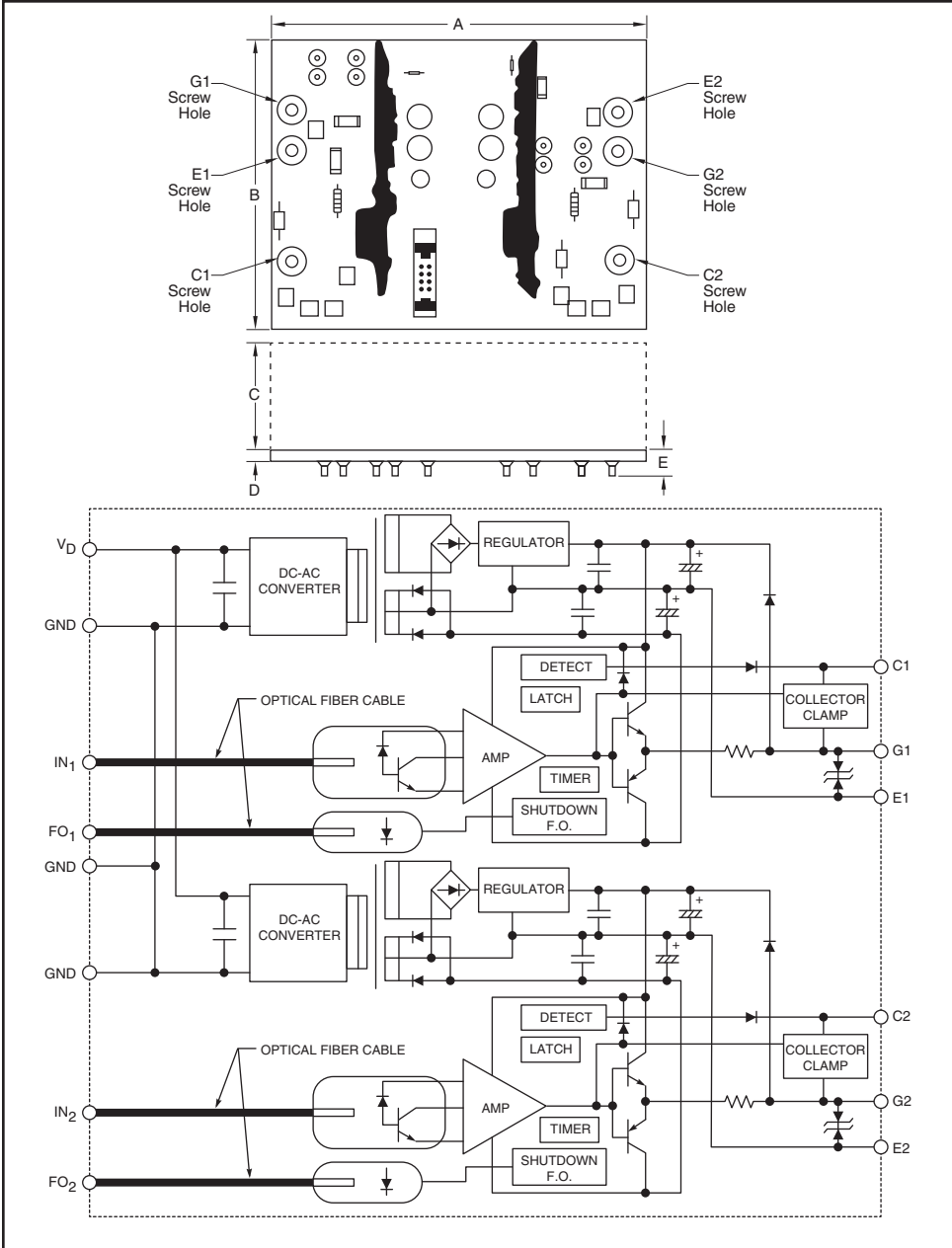


Dual IGBT Gate Driver + DC/DC Converter



Circuit Diagram

Dimensions	Inches	Millimeters
A	5.63	143.0
B	4.13	105.0
C	1.69 Max.	43.0 Max.
D	0.063	1.6
E	0.12 Max.	3.0 Max.



Description:

VLA555-01R / -02R is a hybrid integrated circuit designed for driving IGBT modules in the new Mega Power Dual package.

Features:

- Directly Mountable on the New Mega Power Dual package
- Built in Isolated DC-DC Converter for Gate Drive
- Output Peak Current is ±24A (max)
- Built in Short Circuit Protection with Soft Shutdown
- Built in Collector Clamp Circuit
- Electrical Isolation Voltage 4000 V_{rms} (for 1 Minute)
- CMOS Compatible Input Interface
- Fiber Optic Interface

Applications:

- Gate Driver for 1200V and 1700V New Mega Power Dual IGBT Modules

Recommended IGBT Modules:

- CM2500DY-24S – VLA555-01R
- CM1800DY-34S – VLA555-02R



VLA555-01R / -02R
Dual IGBT Gate Driver + DC/DC Converter

Absolute Maximum Ratings, $T_a = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Rating	Units
Supply Voltage (DC)	V_D	-1 ~ 16.5	Volts
Input Signal Voltage (Applied Between IN+ and IN-, 50% Duty Cycle, Pulse Width 1ms)	V_I	-7 ~ +7	Volts
Input Current (Pulse, At Power Supply Start-up, PW 10msec)	$I_{D(\text{Pulse})}$	4	Amperes
Output Peak Current (Pulse Width 3 μ s)	I_{OHP}	-24	Amperes
	I_{OLP}	24	Amperes
Isolation Voltage (Sine Wave Voltage 60Hz, for 1 min.)	V_{iso}	4000	V_{rms}
Operating Temperature (No Condensation Allowable)	T_{opr}	-30 ~ 70	$^\circ\text{C}$
Storage Temperature (No Condensation Allowable)	T_{stg}	-40 ~ 85	$^\circ\text{C}$
Gate Drive Current (Gate Average Current Per One Circuit)	I_{drive}	210	mA
Main Circuit Voltage (Voltage Between P and N)	V_{DC_Link}	840 (-01R)	Volts
	V_{DC_Link}	1200 (-02R)	Volts

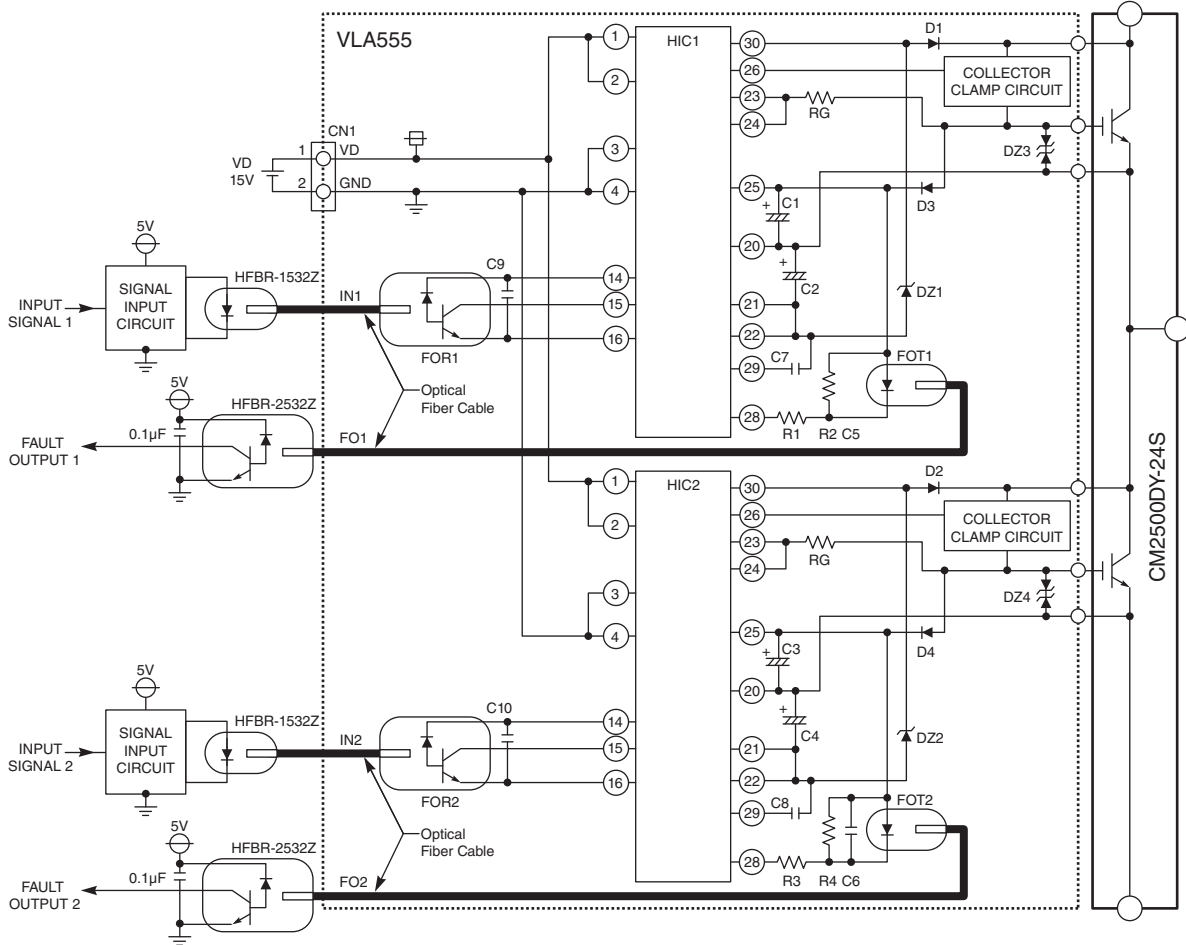
Electrical Characteristics, $T_a = 25^\circ\text{C}$, $V_D = 15\text{V}$, $f = 3\text{kHz}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Supply Voltage	V_D	Recommended Range	14.2	15	15.8	Volts
Pull-up Voltage on Input Side	V_{IN}	Recommended Range (For Input Signal)	4.75	5	5.25	Volts
"H" Input Signal Current	I_{IH}	Recommended Range	10	12	16	mA
Switching Frequency	f	Recommended Range	—	—	10	kHz
Gate Resistance	R_G	Recommended Range	0	—	—	Ω
Plus Bias Output Voltage	V_{OH}		14	15.3	16.5	Volts
Minus Bias Output Voltage	V_{OL}		-5.5	-7	-11	Volts
"L-H" Propagation Time	t_{PLH}	$I_{IH} = 12\text{mA}$	0.3	—	1	μs
"H-L" Propagation Time	t_{PHL}	$I_{IH} = 12\text{mA}$	0.3	—	1	μs
Clamp Zener Voltage	V_Z^{*1}	Total Zener Voltage in Collector	901	950 (-01R)	999	Volts
		Clamp Circuit at $I_Z = 1\text{mA}$, $T_j = 25^\circ\text{C}$	1284	1350 (-02R)	1419	Volts
SC Detect Voltage	V_{SC}		15	—	—	Volts

*1 It depends on the condition of use, however actual clamp voltage of collector rises by 250V from V_Z .

VLA555-01R / -02R
Dual IGBT Gate Driver + DC/DC Converter

Application Example



Details of Connector CN1 : 5045-02A (MOLEX)

Pin Number	Signal
1	VD
2	GND

Recommended Part for Connector

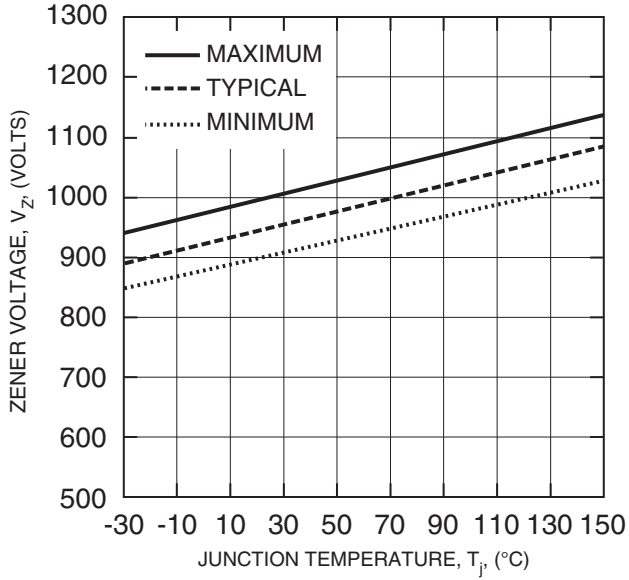
Housing	Strain Relief	Manufacturer
5051-02	#2759 or #5159	MOLEX

Details of Fiber Optic Connector

Part Number	Part	Function	Signal Rate	Structure	Manufacturer
FOR1	HFBR-2532Z	Receiver	1MBd (High Performance)	Horizontal Package	AVAGO
FOR2					
FOT1	HFBR-1532Z	Transmitter			
FOT2					

VLA555-01R / -02R
Dual IGBT Gate Driver + DC/DC Converter

TOTAL ZENER VOLTAGE CHARACTERISTICS OF VLA555-01R (TYPICAL)



TOTAL ZENER VOLTAGE CHARACTERISTICS OF VLA555-02R (TYPICAL)

