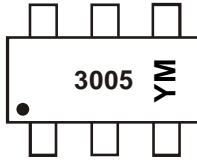


Marking Information

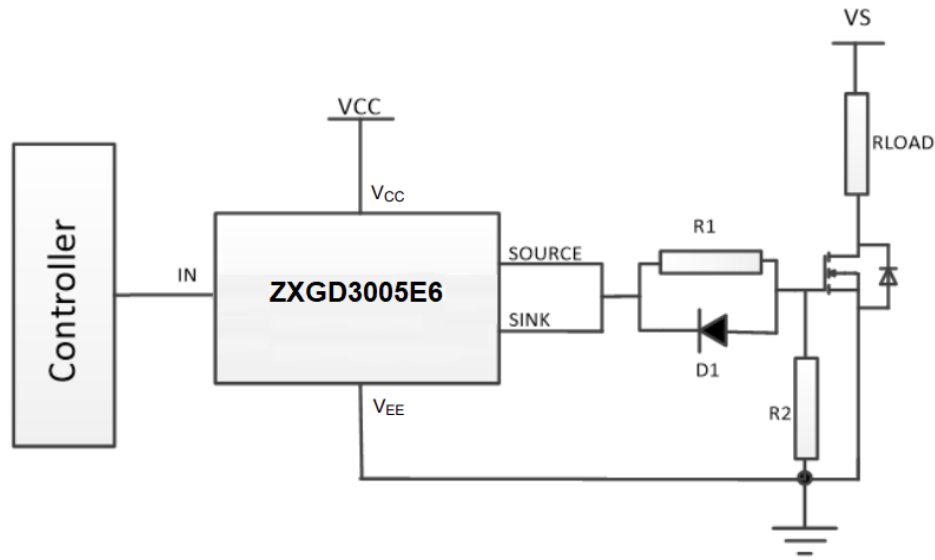


3005 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: 1 = 2021)
 M = Month (ex: 9 = September)

Date Code Key

Year	2010	...	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	X	...	I	J	K	L	M	N	O	P	R	S
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Typical Application Circuit



Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Supply Voltage, with Respect to V _{EE}	V _{CC}	25	V
Input Voltage, with Respect to V _{EE}	V _{IN}	25	V
Output Difference Voltage (Source – Sink)	ΔV(SOURCE-SINK)	±7.5	V
Peak Output Current	I _{PK}	±10	A
Input Current	I _{IN}	±100	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

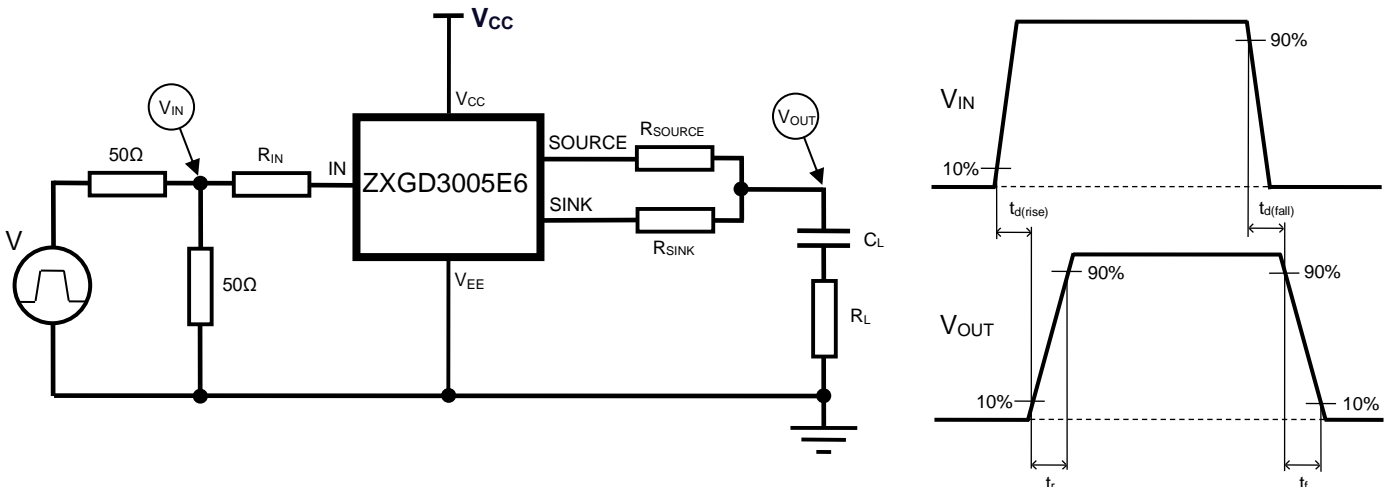
Characteristic	Symbol	Value	Unit
Power Dissipation (Notes 5 & 6)	P _D	1.1	W
Linear Derating Factor		8.8	mW/°C
Thermal Resistance, Junction to Ambient (Notes 5 & 6)	R _{θJA}	113	°C/W
Thermal Resistance, Junction to Lead (Note 7)	R _{θJL}	105	
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Notes:
- For a device surface mounted on 25mm x 25mm x 0.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions; the device is measured when operating in a steady-state condition. The heatsink is split in half with the pin 1 (V_{CC}) and pin 3 (V_{EE}) connected separately to each half.
 - For device with two active die running at equal power.
 - Thermal resistance from junction to solder-point at the end of each lead on pin 1 (V_{CC}) and pin 3 (V_{EE}).

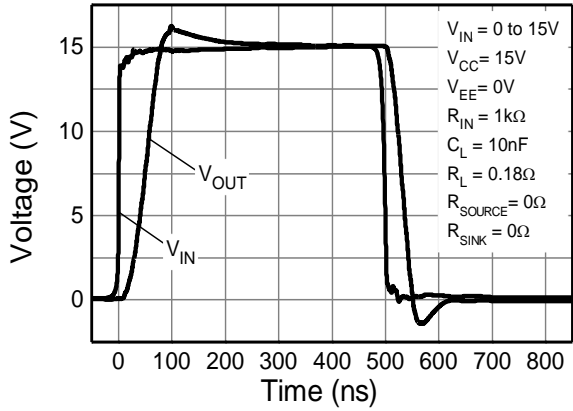
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Output Voltage, High	V _{OH}	—	V _{CC} - 0.8	—	V	V _{IN} = V _{CC}
Output Voltage, Low	V _{OL}	—	V _{EE} + 0.2	V _{EE} + 0.5		V _{IN} = V _{EE}
Supply Breakdown Voltage	BV _{CC}	25	—	—	V	I _Q = 100μA, V _{IN} = V _{CC}
		25	—	—		I _Q = 100μA, V _{IN} = V _{EE} = 0V
Quiescent Supply Current	I _Q	—	—	50	nA	V _{CC} = 20V, V _{IN} = V _{CC}
		—	—	50		V _{CC} = 20V, V _{IN} = V _{EE} = 0V
Source Current	I _(SOURCE)	—	4.0	—	A	V _{CC} = 5V, I _{IN} = 1mA, V _{OUT} = 0V
Sink Current	I _(SINK)	—	3.8	—		V _{CC} = 5V, I _{IN} = -1mA, V _{OUT} = 5V
Source Current with Varying Input Resistances	I _(SOURCE)	—	6.4	—	A	R _{IN} = 200Ω
			5.5			R _{IN} = 1kΩ
			3.9			R _{IN} = 10kΩ
			2.2			R _{IN} = 100kΩ
			0.44			R _{IN} = 1000kΩ
Sink Current with Varying Input Resistances	I _(SINK)	—	7.7	—	A	R _{IN} = 200Ω
			6.5			R _{IN} = 1kΩ
			4.4			R _{IN} = 10kΩ
			2.3			R _{IN} = 100kΩ
			0.46			R _{IN} = 1000kΩ
Switching Times with Low Load Capacitance C _L = 10nF	t _{d(rise)} t _r t _{d(fall)} t _f	—	8	—	ns	V _{CC} = 15V, V _{EE} = 0V
			48			V _{IN} = 0V to 15V
			16			R _{IN} = 1kΩ
			35			C _L = 10nF, R _L = 0.18Ω
						R _{SOURCE} = 0Ω, R _{SINK} = 0Ω
Switching Times with High Load Capacitance C _L = 100nF	t _{d(rise)} t _r t _{d(fall)} t _f	—	46	—	ns	V _{CC} = 15V, V _{EE} = 0V
			419			V _{IN} = 0V to 15V
			47			R _{IN} = 1kΩ
			467			C _L = 100nF, R _L = 0.18Ω
						R _{SOURCE} = 0Ω, R _{SINK} = 0Ω
Switching Times with Asymmetric Source and Sink Resistors	t _{d(rise)} t _r t _{d(fall)} t _f	—	24	—	ns	V _{CC} = 15V, V _{EE} = -5V
			133			V _{IN} = -5 to 15V
			16			R _{IN} = 1kΩ
			37			C _L = 10nF, R _L = 0.18Ω
						R _{SOURCE} = 4.7Ω, R _{SINK} = 0Ω

Switching Test Circuit and Timing Diagram

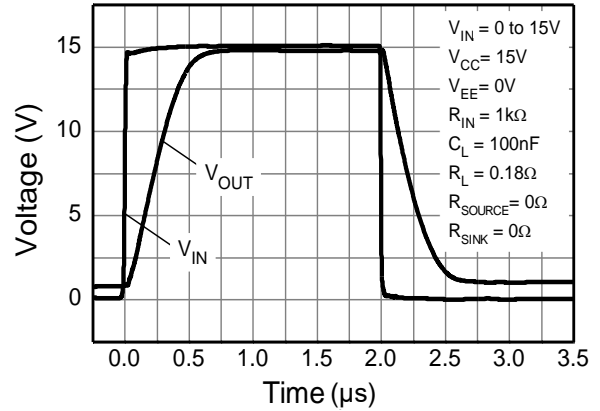


Typical Switching Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



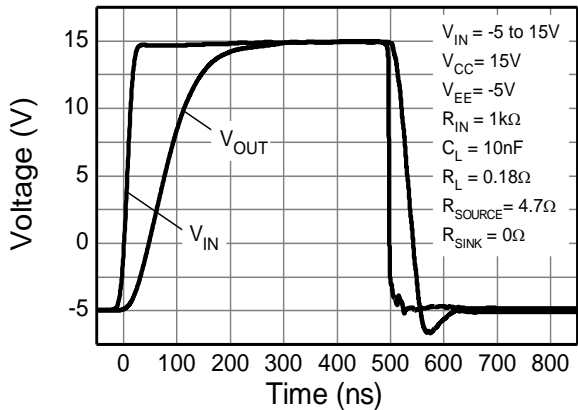
Switching Speed

Low Load Capacitance $C_L = 10\text{nF}$



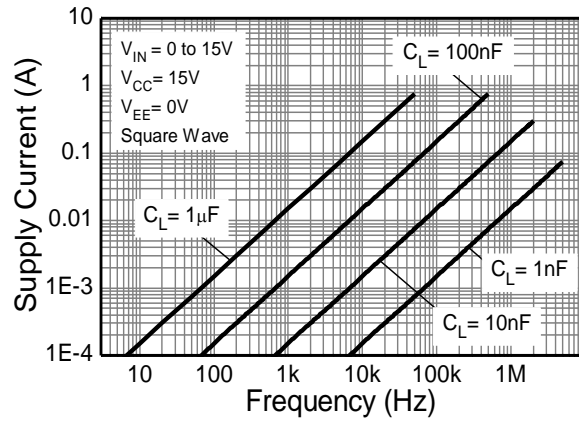
Switching Speed

High Load Capacitance $C_L = 100\text{nF}$



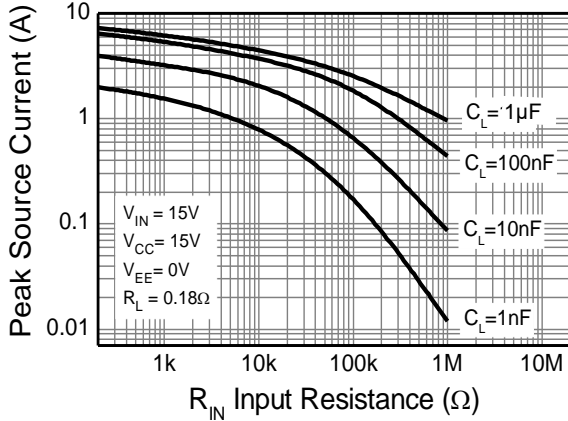
Switching Speed

Asymmetric Source and Sink Resistors

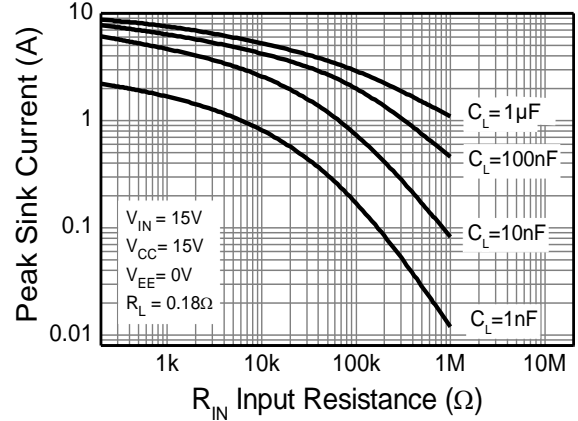


Supply Current

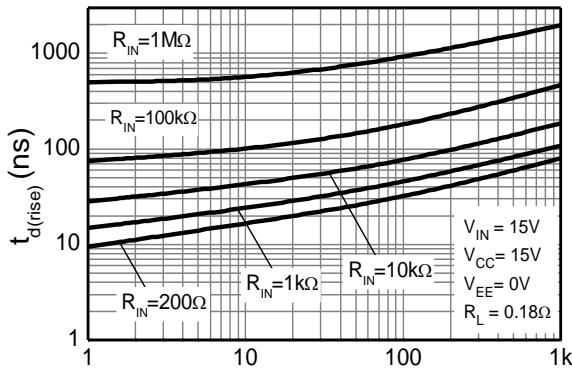
Typical Switching Characteristics (@T_A = +25°C, unless otherwise specified.)



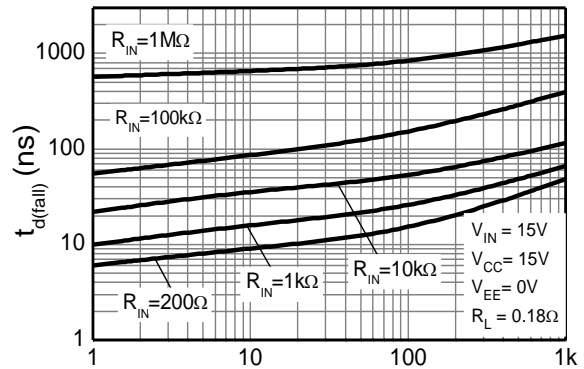
Source Current vs. Input Resistance



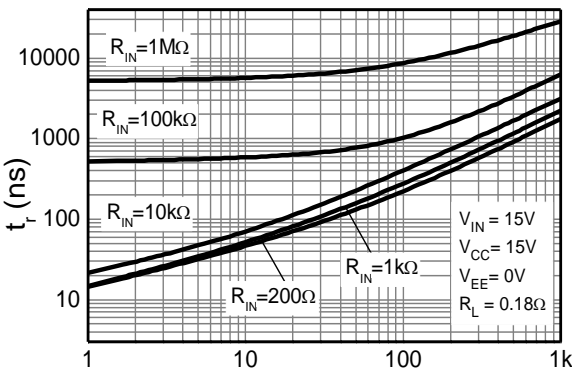
Sink Current vs. Input Resistance



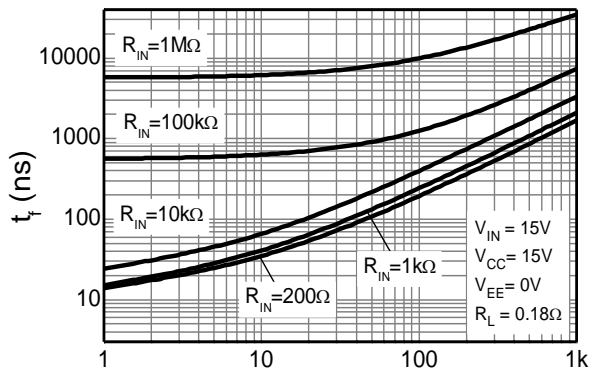
Turn-On Delay Time



Turn-Off Delay Time



Turn-On Rise Time



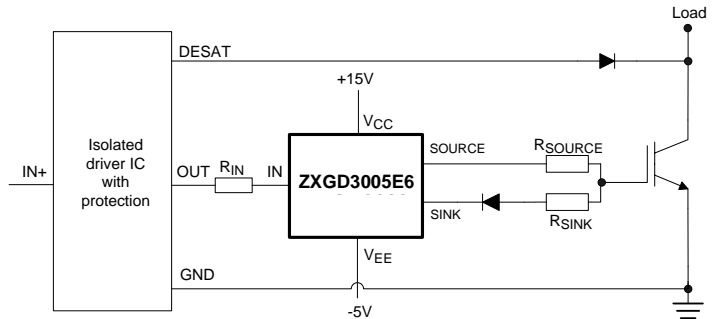
Turn-Off Fall Time

Application Notes

Independent Control of Rise and Fall Time

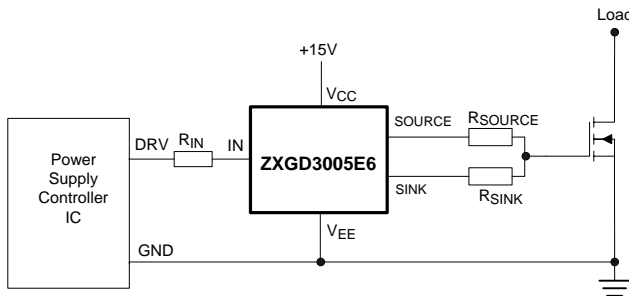
An application may require the turn-on (t_{ON}) and turn-off (t_{OFF}) time to be independently controlled, which can be achieved by setting different R_{SOURCE} and R_{SINK} values. With asymmetric R_{SOURCE} and R_{SINK} resistors, then a potential difference will occur between the SOURCE and SINK pins during the switching transition. If the potential difference across the SOURCE and SINK pins is greater than 7.5V, then it could damage the ZXGD3005E6.

In this circuit example of driving an IGBT, a blocking diode is added in series with R_{SINK} to protect against excess reverse current being induced into the SINK pin.

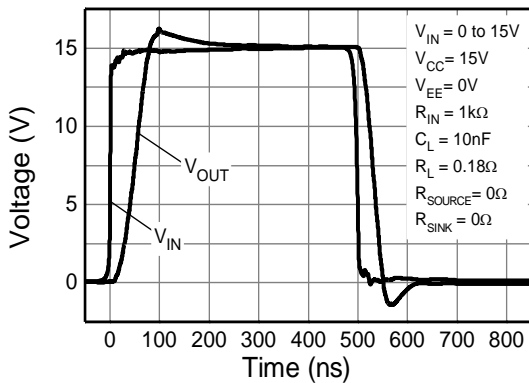


Circuit Example of Driving A MOSFET

Application example of gate driving a MOSFET from 0V to 15V with $R_{SOURCE} = R_{SINK} = 0\Omega$



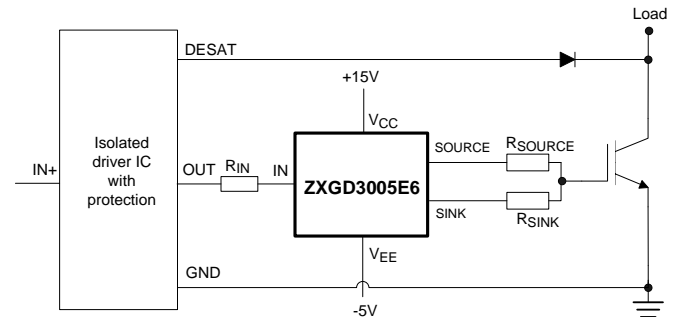
Switching Time Characteristic



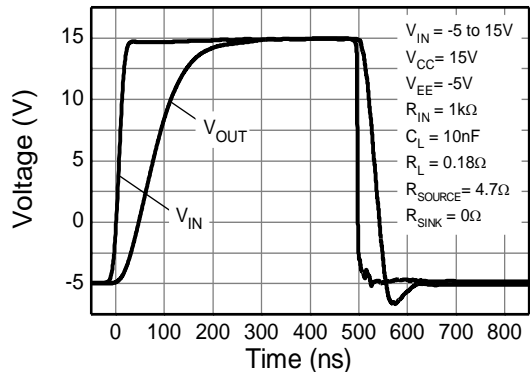
Symmetric Source and Sink Resistors

Circuit Example of Driving An IGBT

Application example of gate driving an IGBT with independent t_{ON} and t_{OFF} using asymmetric R_{SOURCE} and R_{SINK} . In addition, the gate is driven from -5 to +15V to prevent dV/dt induced false triggering.



Switching Time Characteristic

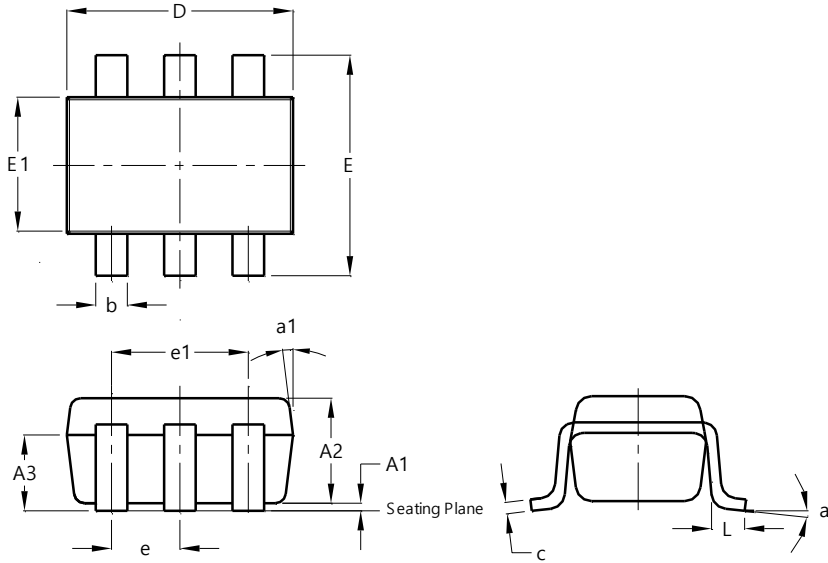


Asymmetric Source and Sink Resistors

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT26

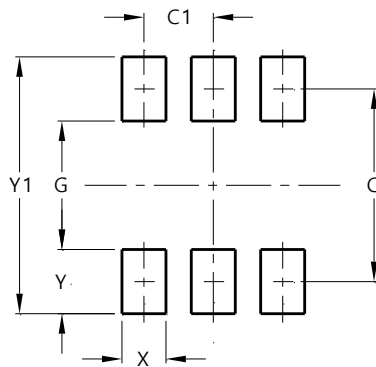


SOT26			
Dim	Min	Max	Typ
A1	0.013	0.10	0.05
A2	1.00	1.30	1.10
A3	0.70	0.80	0.75
b	0.35	0.50	0.38
c	0.10	0.20	0.15
D	2.90	3.10	3.00
e	-	-	0.95
e1	-	-	1.90
E	2.70	3.00	2.80
E1	1.50	1.70	1.60
L	0.35	0.55	0.40
a	-	-	8°
a1	-	-	7°
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT26



Dimensions	Value (in mm)
C	2.40
C1	0.95
G	1.60
X	0.55
Y	0.80
Y1	3.20

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