

Is Now Part of

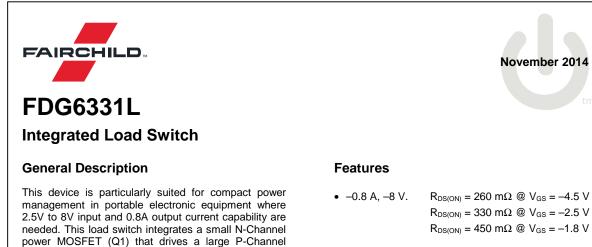


ON Semiconductor®

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power MOSFET (Q2) in one tiny SC70-6 package.

Applications

Load switch

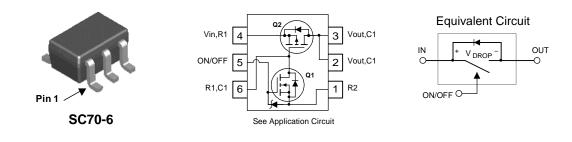
· Power management

• Control MOSFET (Q1) includes Zener protection for ESD ruggedness (>6KV Human body model)

FDG6331L

November 2014

- High performance trench technology for extremely low R_{DS(ON)}
- Compact industry standard SC70-6 surface mount package



Absolute Maximum Ratings T_A=25°C unless otherwise noted

Symbol	Parameter			Ratings	Units	
V _{IN}	Gate-Source Voltage (Q2)			± 8		
V _{ON/OFF}	Gate-Source Voltage (Q1)			-0.5 to 8		
I _{Load}	Load Current - Continu	Jous	(Note 2)	0.8	А	
	– Pulsed		(Note 2)	2.4		
P _D	Maximum Power Dissipa	tion	(Note 1)	0.3	W	
	Operating and Storage Junction Temperature Range			–55 to +150 °(
	I Characteristics				°C	
Therma R _{θJA}	I Characteristics	ction-to-Ambi	ient (Note 1a)	415	°C/W	
Therma R _{θJA}	I Characteristics Thermal Resistance, Jun e Marking and Or	ction-to-Ambi	ient (Note 1a)			

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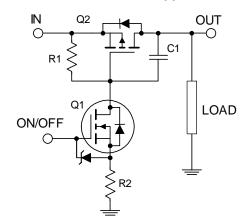
FDG6331L

Symbol	Parameter	Test Conditions	Min	Тур	Max	Units
Off Cha	racteristics					
BVIN	Vin Breakdown Voltage	$V_{ON/OFF} = 0 V, I_D = -250 \mu A$	8			V
I _{Load}	Zero Gate Voltage Drain Current	$V_{IN} = -6.4 \text{ V}, V_{ON/OFF} = 0 \text{ V}$			-1	μΑ
I _{FL}	Leakage Current, Forward	$V_{ON/OFF} = 0 V, V_{IN} = 8 V$			100	nA
I _{RL}	Leakage Current, Reverse	$V_{ON/OFF} = 0 V, V_{IN} = -8 V$			-100	nA
On Char	acteristics (Note 2)					
V _{ON/OFF (th)}	Gate Threshold Voltage	$V_{IN} = V_{ON/OFF}, I_D = -250 \ \mu A$	0.4	0.9	1.5	V
R _{DS(on)}	Static Drain–Source On–Resistance (Q2)	$ \begin{array}{ll} V_{IN} = 4.5 \ V, & I_D = -0.8 \ A \\ V_{IN} = 2.5 \ V, & I_D = -0.7 \ A \\ V_{IN} = 1.8 \ V, & I_D = -0.6 \ A \end{array} $		155 193 248	260 330 450	mΩ
R _{DS(on)}	Static Drain–Source On–Resistance (Q1)			310 380	400 500	mΩ
Drain-S	ource Diode Characteristics	and Maximum Ratings				
Is	Maximum Continuous Drain-Source				-0.25	Α
V _{SD}	Drain–Source Diode Forward Voltage	$V_{ON/OFF} = 0 \text{ V}, \text{ I}_{S} = -0.25 \text{ A}(\text{Note 2})$			-1.2	V

Notes: 1. R_{0JA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. R_{BJC} is guaranteed by design while R_{BJA} is determined by the user's board design.

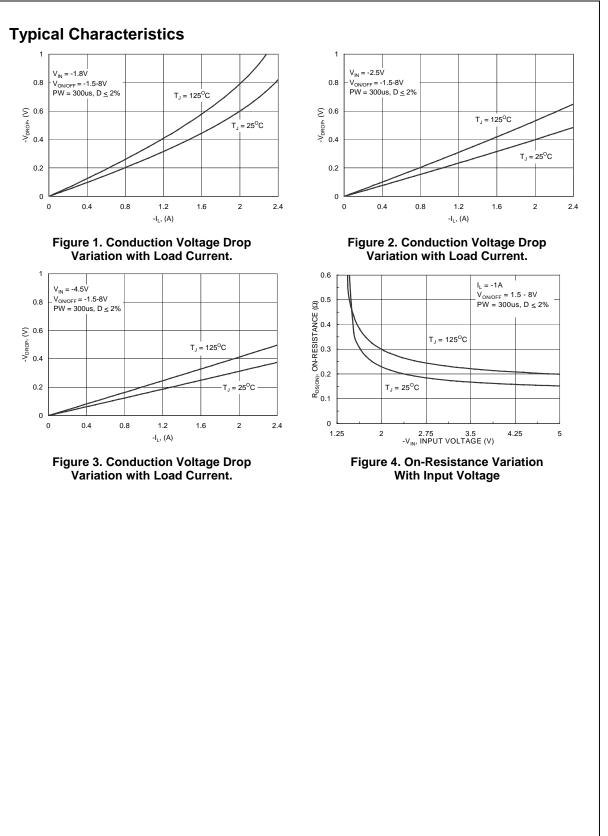
2. Pulse Test: Pulse Width < 300 μ s, Duty Cycle < 2.0%.

FDG6331L Load Switch Application Circuit



External Component Recommendation: For additional in-rush current control, R2 and C1 can be added. For more information, see application note AN1030.

FDG6331L Rev B1 (W)



FDG6331L

Dimensional Outline and Pad Layout

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