

SOT-23 Plastic-Encapsulate MOSFETS

ALJ3360

N-Channel Enhancement Mode Power MOSFET

Features

- $V_{DS} = 60V$, $I_D = 3.3A$
- $R_{DS(ON)} < 110m\Omega$ @ $V_{GS} = 10V$
- $R_{DS(ON)} < 125m\Omega$ @ $V_{GS} = 4.5V$
- High power and current handing capability
- Lead free product is acquired
- Surface mount package

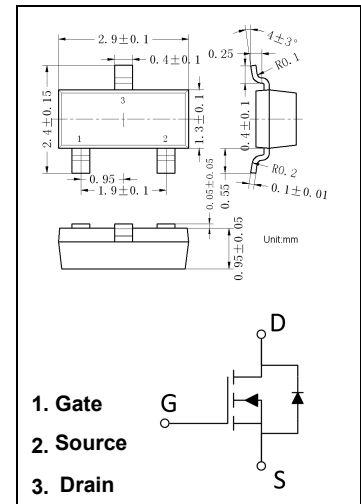
Applications

- Battery switch
- DC/DC converter

Marking: A36.

Description

The ALJ3260 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other switching application.



Maximum Ratings ($T_a=25^\circ C$ unless otherwise specified)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source voltage	60	V
V_{GS}	Gate-Source voltage	± 20	
I_D	Drain Current-Continuous	3.3	A
I_{DM}	Pulsed Drain Current ¹⁾	11	
P_D	Maximum Power Dissipation	1.7	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristic

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient ²⁾	73.5	$^\circ C/W$

Electrical Characteristics (T_J=25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	60	65		V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 60V, V _{GS} = 0V			1	μA
I _{GSS}	Gate-body Leakage current	V _{GS} = ±20V, V _{DS} = 0V,			±100	nA
On Characteristics ³⁾						
V _{GS(th)}	Gate-Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	0.5	1.2	2.5	V
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} = 10V, I _D = 3.3A			110	mΩ
		V _{GS} = 4.5V, I _D = 3.3A			125	mΩ
g _{fs}	Forward Trans conductance	V _{DS} = 15V, I _D = 2A	3			S
Dynamic Characteristics ⁴⁾						
C _{iss}	Input Capacitance	V _{GS} = 0V V _{DS} = 30V f = 1.0MHz		245		pF
C _{oss}	Output Capacitance			36		
C _{rss}	Reverse Transfer Capacitance			19.5		
Switching Characteristics ⁴⁾						
t _{d(on)}	Turn-On Delay Time	V _{DD} = 30V, I _D = 1.6A V _{GS} = 10V, R _{GEN} = 1Ω		5		ns
t _r	Rise Time			14		
t _{d(off)}	Turn-Off Delay Time			14		
t _f	Fall Time			9		
Q _g	Total Gate Charge	V _{GS} = 4.5V, I _D = 3.3A, V _{DS} = 30V		5		nC
Q _{gs}	Gate-Source Charge			1		
Q _{gd}	Gate-Drain Charge			1.5		
Drain-Source Diode Characteristics						
V _{SD}	Diode Forward Voltage ³⁾	I _S = 3.3A,V _{GS} = 0V			1.2	V
I _S	Diode Forward Current ²⁾				3.2	A

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

Typical Electrical And Thermal Characteristics

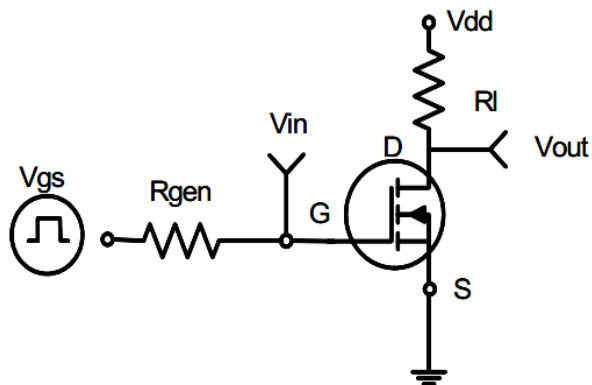


Figure 1: Switching Test Circuit

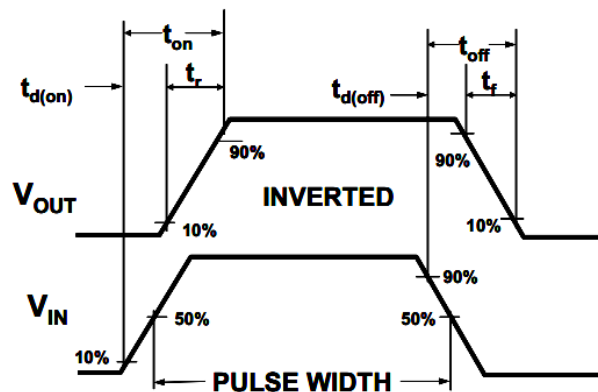


Figure 2: Switching Waveforms

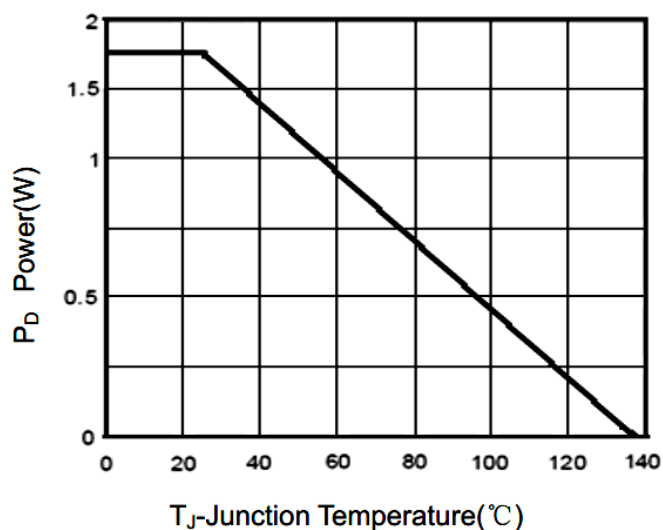


Figure 3 Power Dissipation

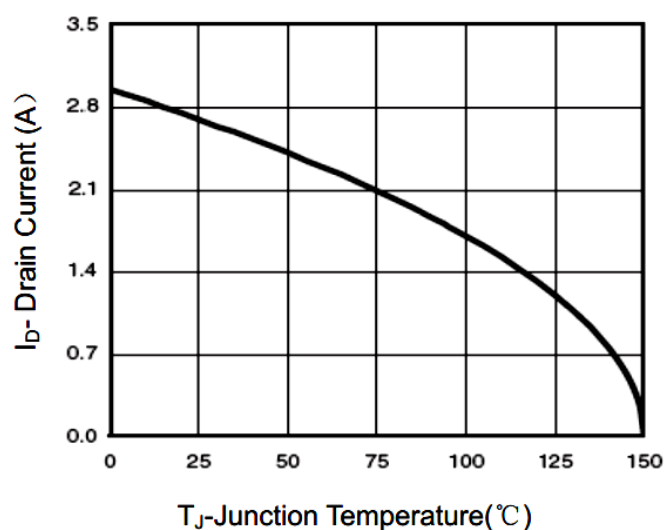


Figure 4 Drain Current

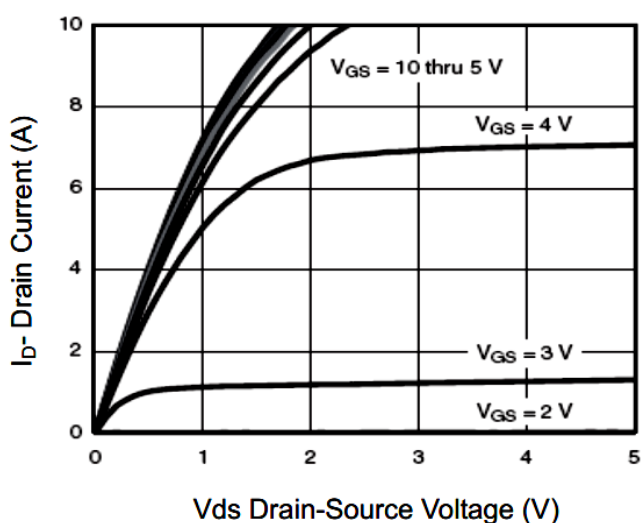


Figure 5 Output Characteristics

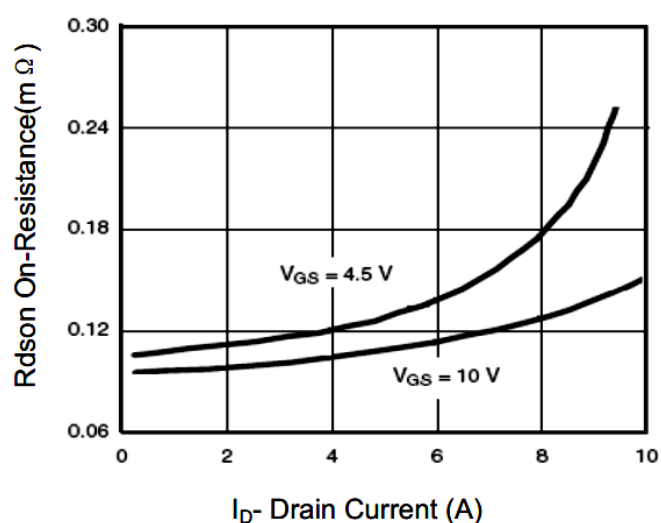


Figure 6 Drain-Source On-Resistance

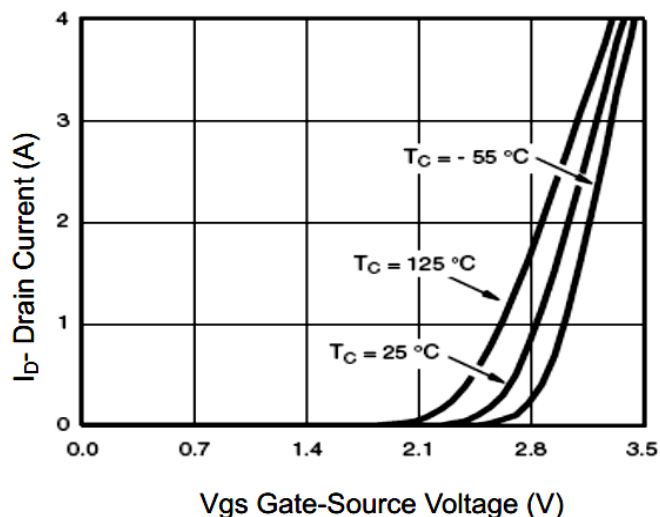


Figure 7 Transfer Characteristics

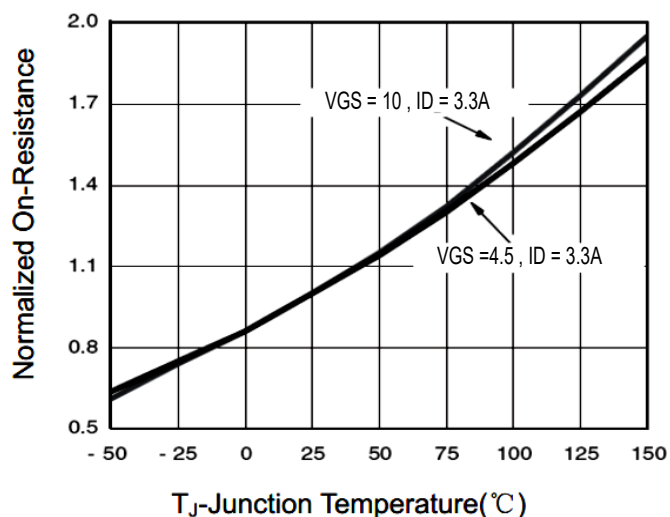


Figure 8 Drain-Source On-Resistance

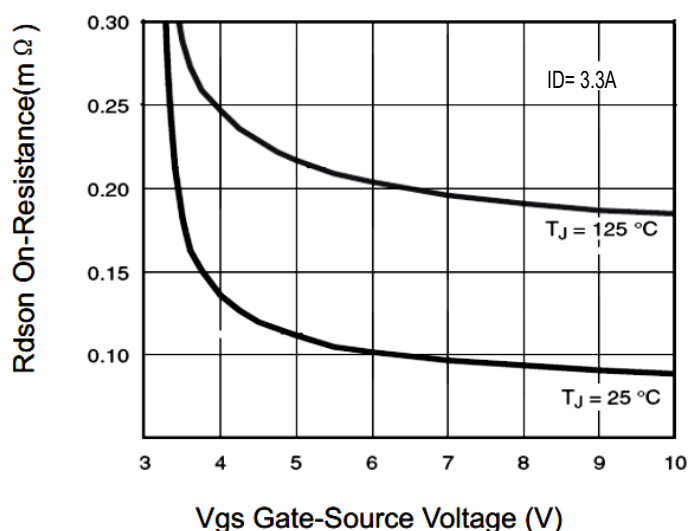


Figure 9 $R_{DS(on)}$ vs V_{GS}

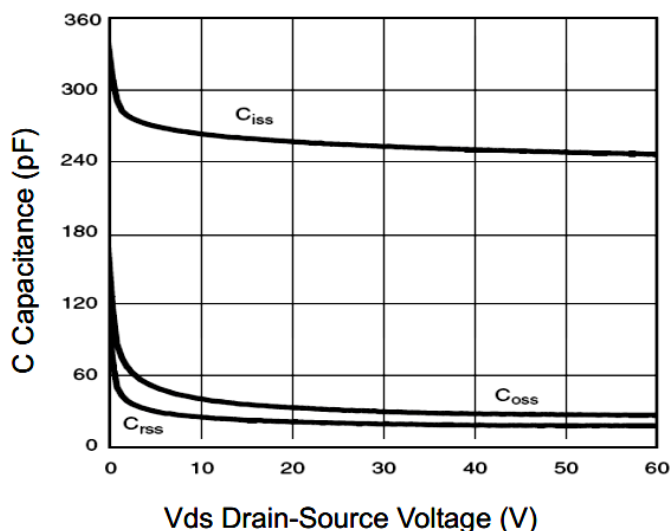


Figure 10 Capacitance vs V_{DS}

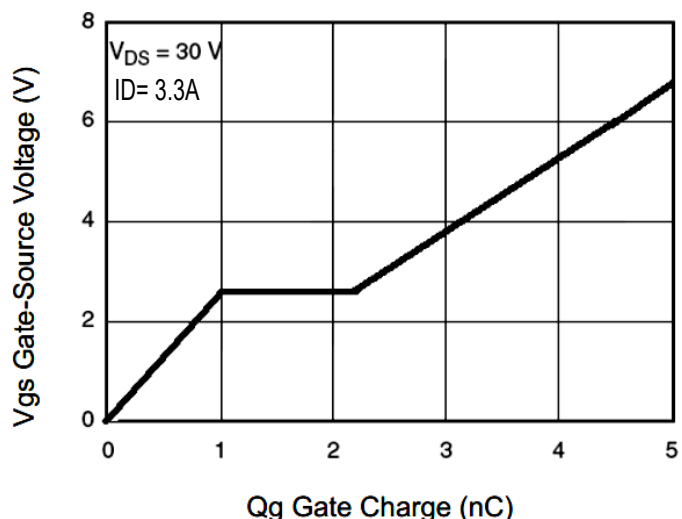


Figure 11 Gate Charge

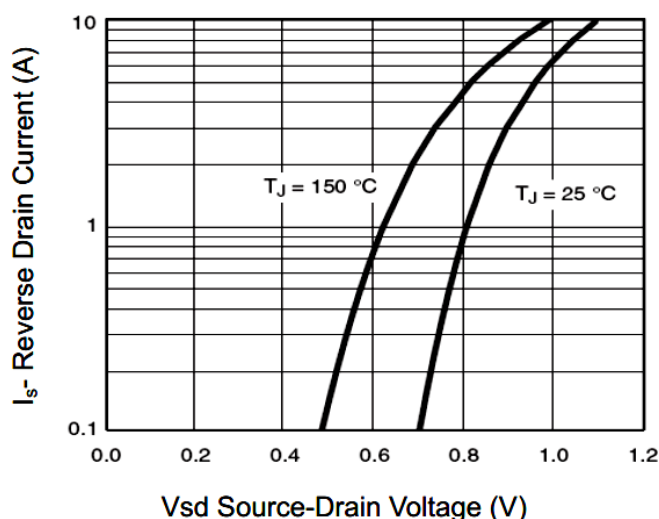


Figure 12 Source- Drain Diode Forward

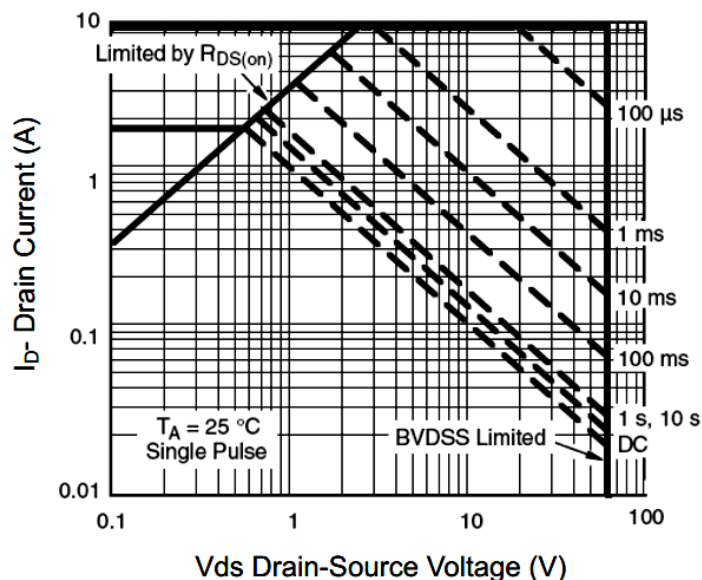


Figure 13 Safe Operation Area

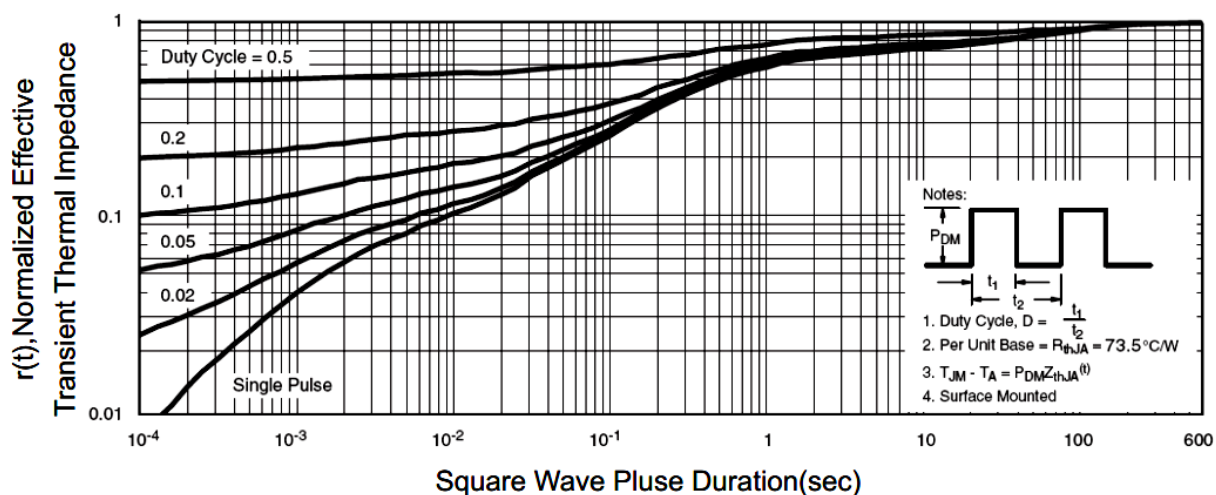


Figure 14 Normalized Maximum Transient Thermal Impedance