

Silicon N-Channel Power MOSFET

Description

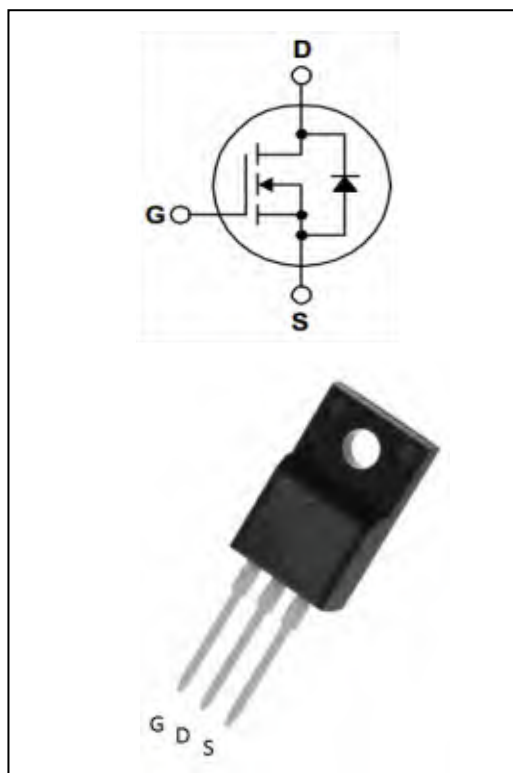
The ZLM8008EE uses advanced 8 inch technology to achieve extremely low Static Drain-to-Source on-Resistance $R_{DS(on)}$. It can be used in a wide variety of applications.

General Features

- $V_{DS}=80V, I_D=80A$
- $R_{DS(on)} \leq 9.0m\Omega @ V_{GS}=10V$
- Low ON Resistance ($R_{DS(on)} \leq 8.0m\Omega$)
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

Application

- E-Bike Controller Applications
- Power switching application
- Load switch



Electrical Characteristics @ $T_a=25^\circ C$ (unless otherwise specified)

a) Limited Parameters:

Symbol	Parameter	Value	Units
V_{DSS}	Drain-to-Source Breakdown Voltage	80	V
I_D	Drain Current (continuous) at $T_c=25^\circ C$	80	A
I_{DM}	Drain Current (pulsed)	300	A
V_{GS}	Gate to Source Voltage	+/-20	V
P_{tot}	Total Dissipation at $T_c=25^\circ C$	200	W
T_j	Max. Operating Junction Temperature	175	$^\circ C$
Eas	Single Pulse Avalanche Energy	23	mj

b) Electrical Parameters:

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{DS}	Drain-source Voltage	$V_{GS}=0V, I_D=250\mu A$	80			V
$R_{DS(on)}$	Static Drain-to-Source on-Resistance	$V_{GS}=10V, I_D=60A$			9.0	m Ω
$V_{GS(th)}$	Gated Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0		4.0	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=68V, V_{GS}=0V$			250	μA
$I_{GSS(F)}$	Gated Body Leakage Current	$V_{GS}=+25V,$			100	nA
$I_{GSS(R)}$	Gated Body Leakage Current	$V_{GS}=-25V,$			-100	nA
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=30V,$ $f=1.0MHz$		3820		pF
C_{oss}	Output Capacitance			610		pF
C_{rss}	Reverse Transfer Capacitance			130		pF
Q_g	Total Gate Charge	$V_{DS}=54V$ $I_D=40A$ $V_{GS}=10V$			160	nC
Q_{gs}	Gate-Source Charge				29	nC
Q_{gd}	Gate-Drain Charge				55	nC

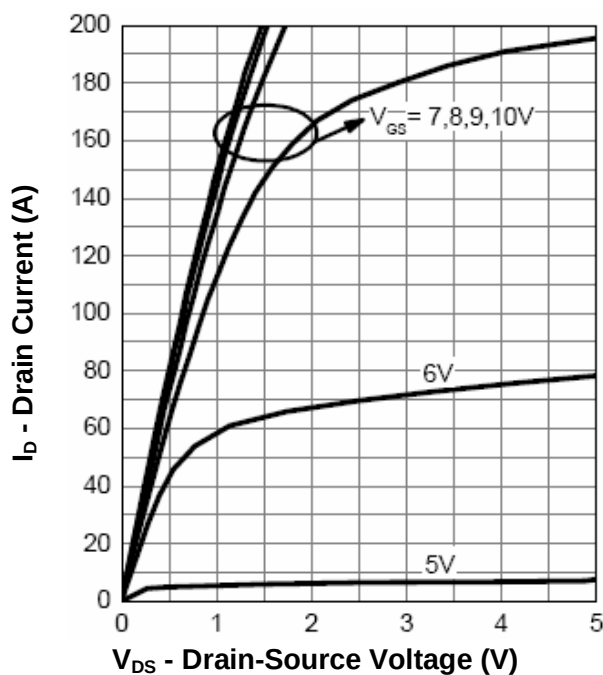
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=30V, I_D=40A, R_L=0.8\Omega, V_{GS}=10V, R_G=8\Omega$		13		nS
t_r	Turn-on Rise Time			64		nS
$t_{d(off)}$	Turn-off Delay Time			49		nS
t_f	Turn-off Fall Time			48		nS

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I _{SD}	S-D Current(Body Diode)				80	A
I _{SDM}	Pulsed S-D Current(Body Diode)				300	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _{DS} =40A			1.3	v
t _{rr}	Reverse Recovery Time	T _J =25℃, I _F =40A di/dt=100A/us		100		nS
Q _{rr}	Reverse Recovery Charge			410		nC
	*Pulse Test: Pulse Width <= 300μs, Duty Cycle< =2%					

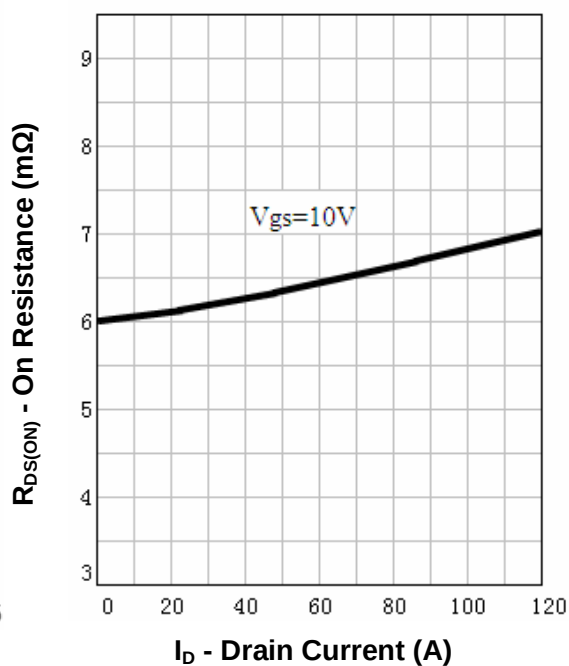
Symbol	Paramter	Max	Units
$R_{\theta JC}$	Junction-to-Case	0.65	$^\circ C/W$

Typical Characteristics

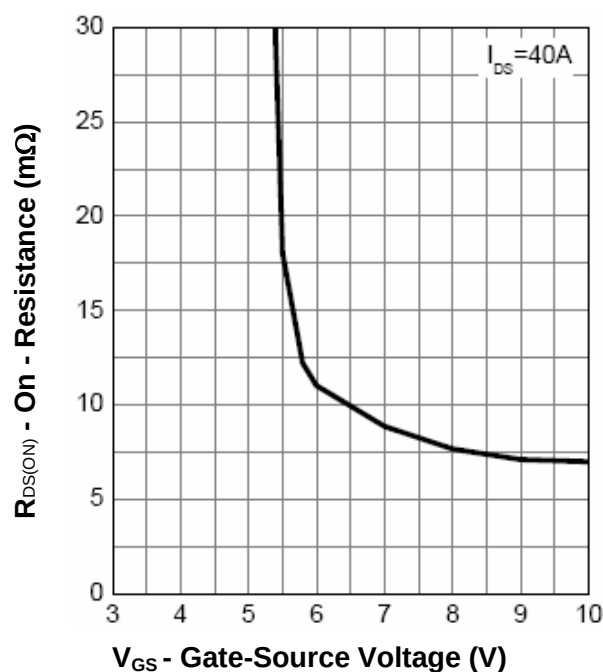
Output Characteristics



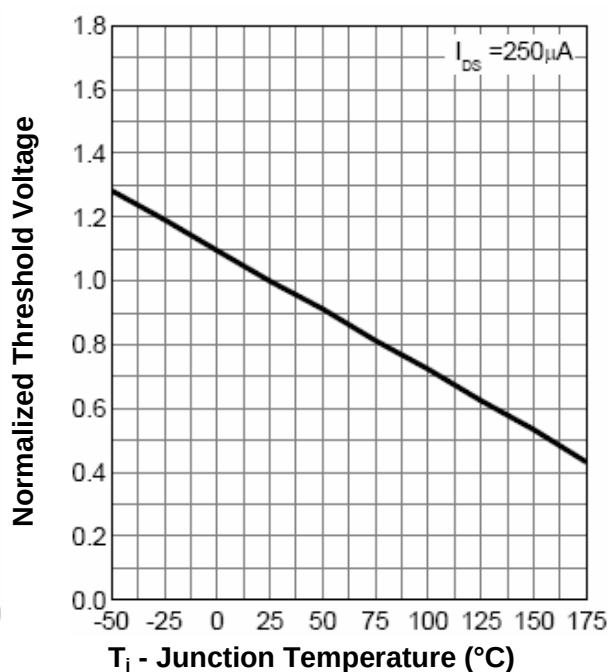
Drain-Source On Resistance



Drain-Source On Resistance

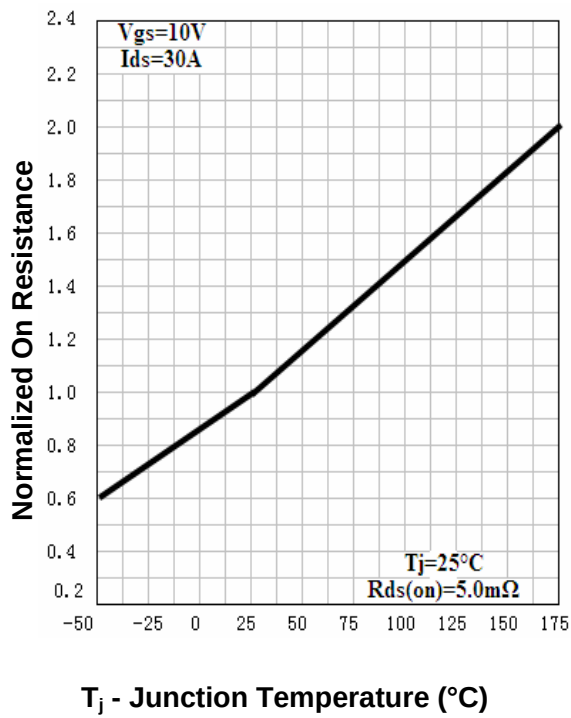


Gate Threshold Voltage

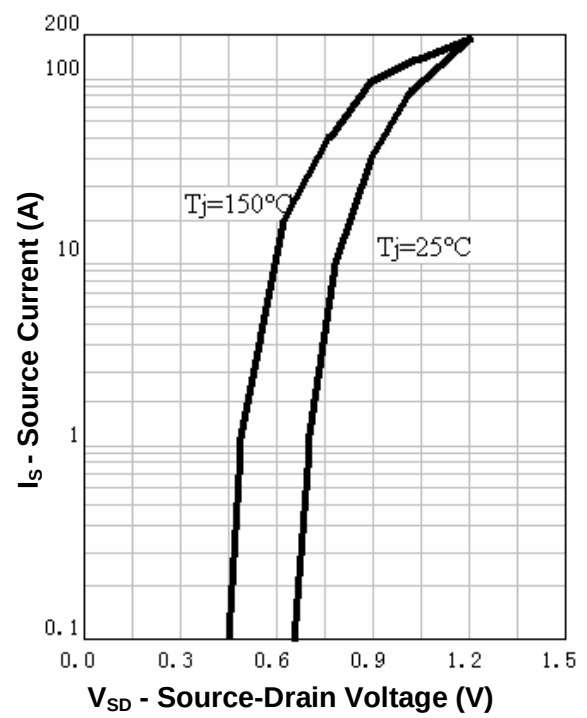


Typical Characteristics

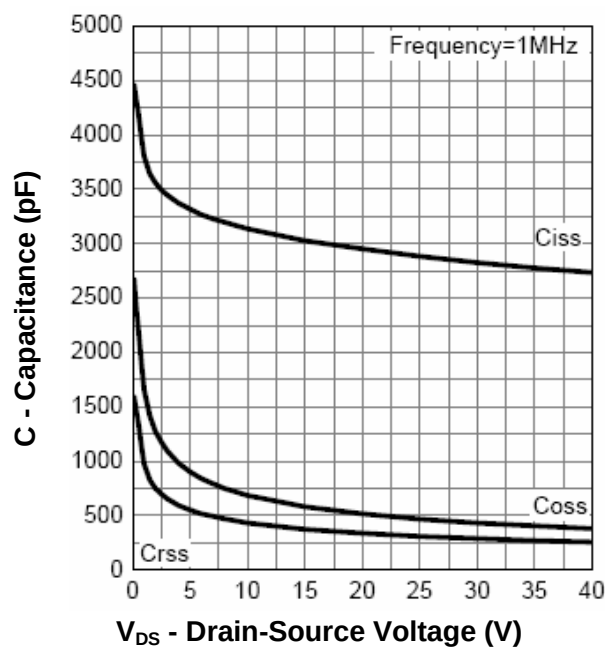
Drain-Source On Resistance



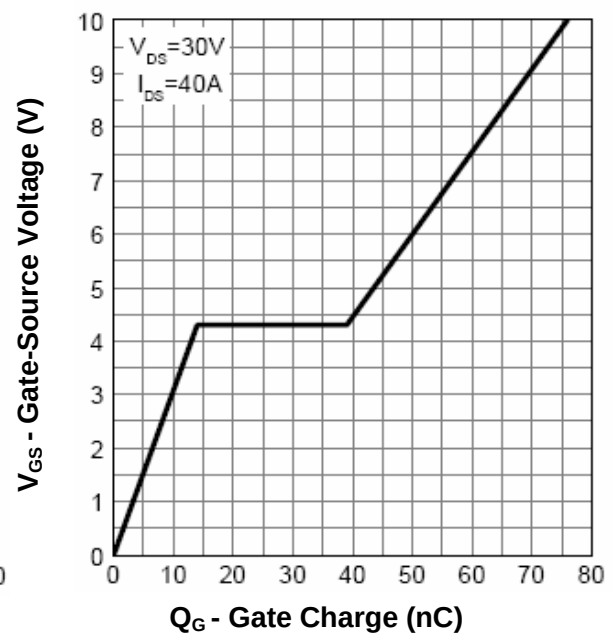
Source-Drain Diode Forward



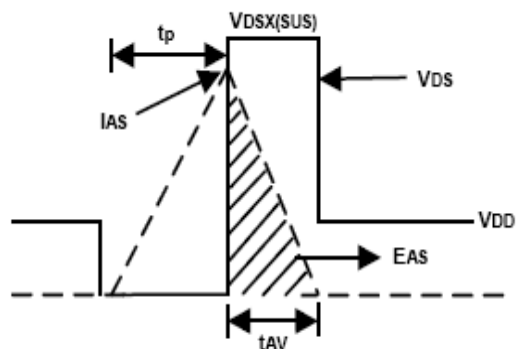
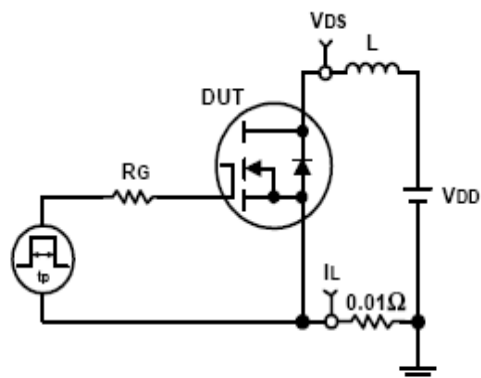
Capacitance



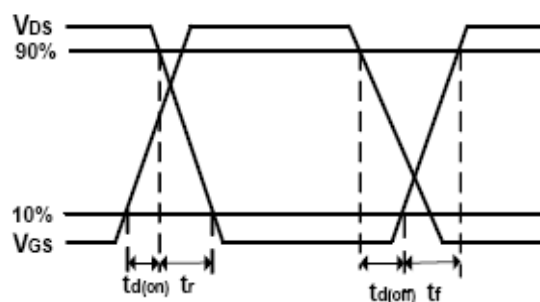
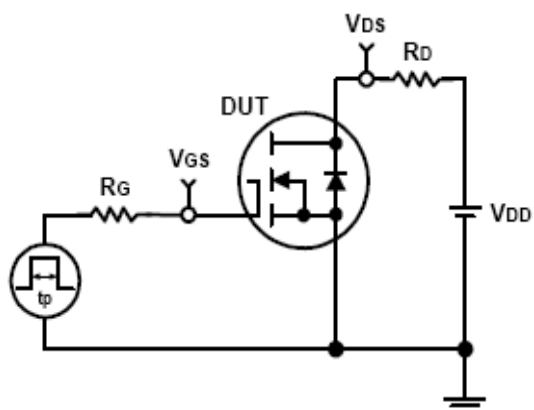
Gate Charge



Avalanche Test Circuit and Waveforms

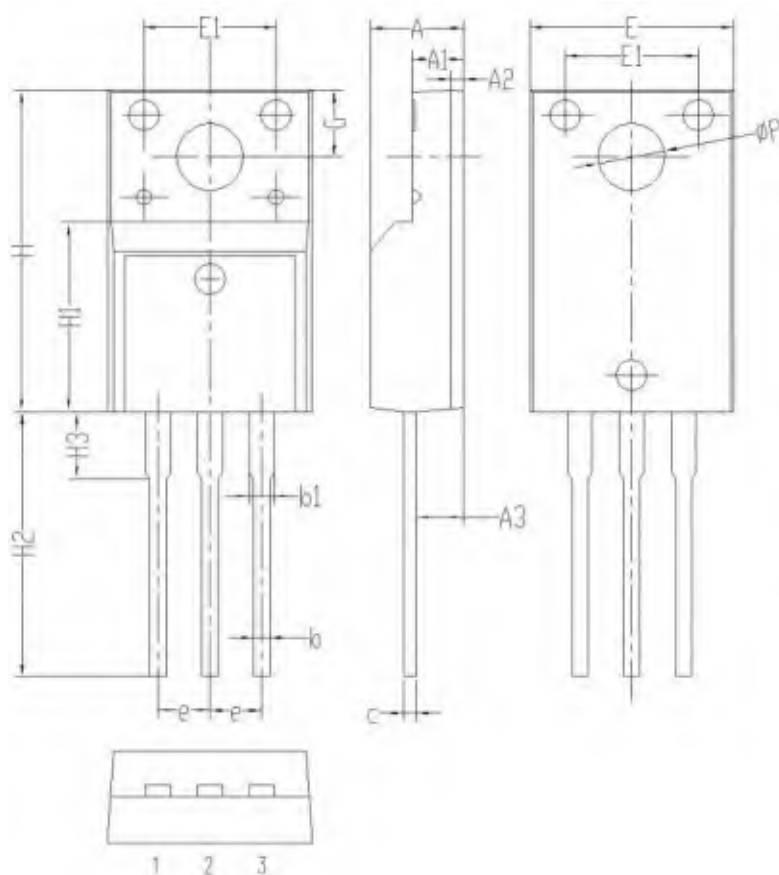


Switching Time Test Circuit and Waveforms



Package Information

TO-220F PACKAGE



	mm		
	MIN	NOM	MAX
A	4.35	4.55	4.75
A1	2.3	2.5	2.7
A2	0.4	0.6	0.8
A3	2.1	2.3	2.5
b	0.6	0.8	1.0
b1	1.0	1.2	1.4
c	0.3	0.5	0.7
e	2.3	2.5	2.7
E	9.8	10	10.2
E1	6.3	6.5	6.7
H	15.6	15.8	16.0
H1	8.8	9	9.2
H2	12.9	13.2	13.5
H3	3.1	3.3	3.5
G	3.1	3.3	3.5
ϕP	3.1	3.3	3.5