ZK60G003LG

N-channel Enhancement Mode Power MOSFET

Features

- Very Low On-resistance RDS(ON)
- Low Crss
- 100% avalanche tested
- Improved dv/dt capability

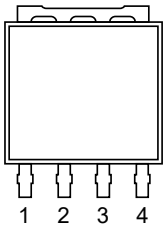
Product Summary

Parameters	Value	Unit
V_{DSS}	60	V
$V_{GS(th)\_Typ}$	1.5	V
I_D(@V_{GS}=10V)	300	A
$R_{DS(ON)\_Typ}$(@V_{GS}=10V	0.67	mΩ
$R_{DS(ON)\_Typ}$(@V_{GS}=4.5V	1.10	mΩ

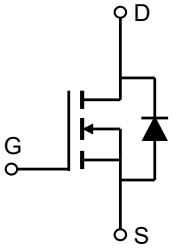
Applications

- PWM Application
- Motor drivers
- DC/DC Converter

LFPAK5x6-4L Top View



Marking



Schematic Diagram

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C = 25°C	I_D	300	A
	T_C = 100°C		156	
Pulsed Drain Current		I_{DM}	1200	A
Single Pulsed Avalanche Energy		E_{AS}	100	mJ
Power Dissipation		P_D	375	W
Thermal Resistance from Junction to Ambient		$R_{\theta JA}$	60	℃/W
Operating Junction and Storage Temperature Range		T_J ,T_{stg}	-55 to 175	℃

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

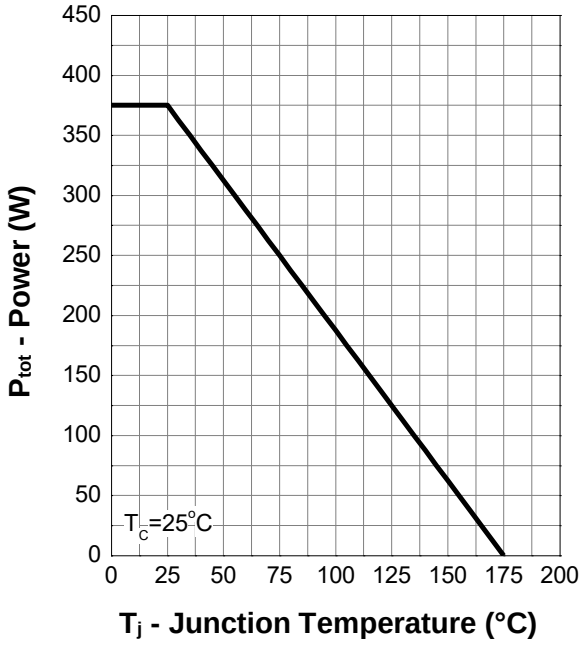
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D = 250 μA	60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} = 48V, V_{GS} =0V			1.0	μA
Gate-body leakage current	I_{GSS}	V_{DS} = 0V, V_{GS} =±20V			±100	nA
On characteristics ④						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250uA	1.0	1.5	2.5	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =30A		0.67	0.75	mΩ
		V_{GS} =4.5V, I_D =20A		1.10	1.25	mΩ
Dynamic characteristics ④⑤						
Input capacitance	C_{iss}	V_{DS} =30V,V_{GS} =0V f =1MHz		7204		pF
Output capacitance	C_{oss}			2154		
Reverse transfer capacitance	C_{rss}			249		
Switching characteristics ④⑤						
Total gate charge	Q_g	V_{GS}=0 to 10V V_{DS}=30V, I_D=30A		155		nC
Gate-source charge	Q_{gs}			25		
Gate-drain charge	Q_{gd}			35		
Turn-on delay time	$t_{d(on)}$	V_{DS}=30V,I_D=30A V_{GS}=10V,R_{GEN}=3.9Ω		16		ns
Turn-on rise time	t_r			56		
Turn-off delay time	$t_{d(off)}$			149		
Turn-off fall time	t_f			96		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage	V_{SD} ④	V_{GS} =0V, I_{SD}=30A			1.3	V
Continuous drain-source diode forward current	I_S ①	T_C =25℃			140	A
Reverse recovery time	trr	di/dt = 100A/μs, I_F = 30A		85		ns
Reverse recovery charge	Qrr			120		nC

Notes:

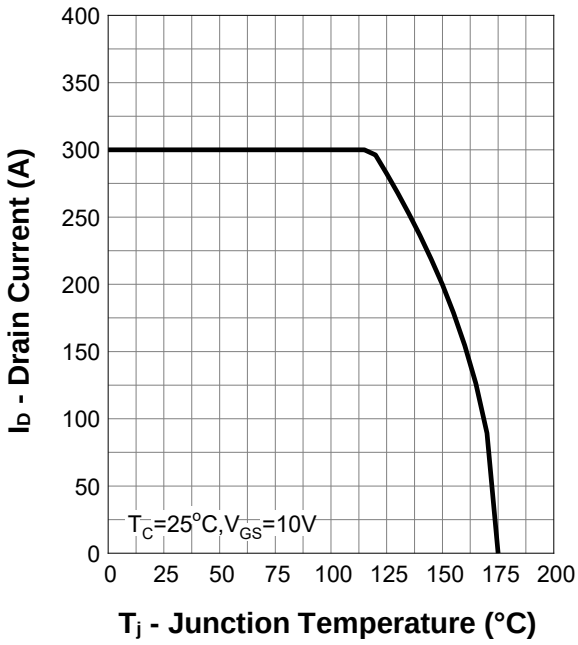
1.Guaranteed by design, not subject to production testing
2.Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Electrical & Thermal Characteristics

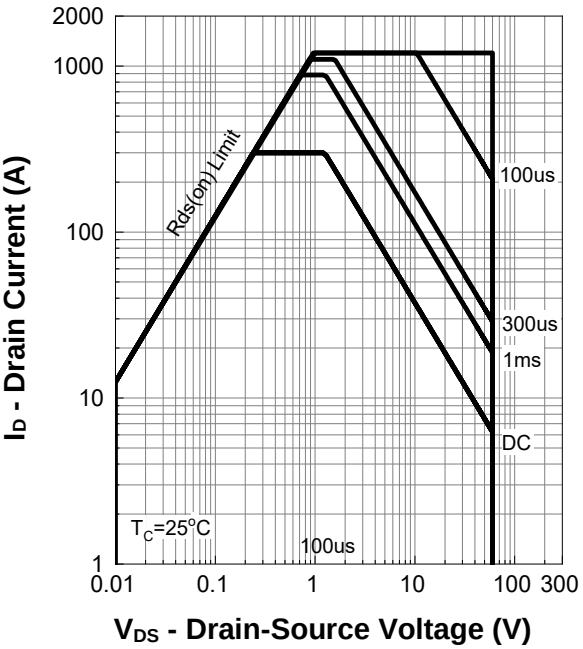
Power Capability



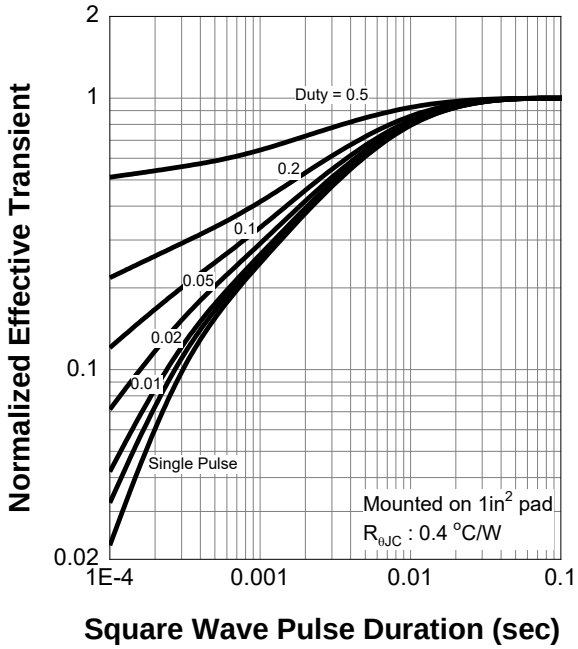
Current Capability



Safe Operation Area

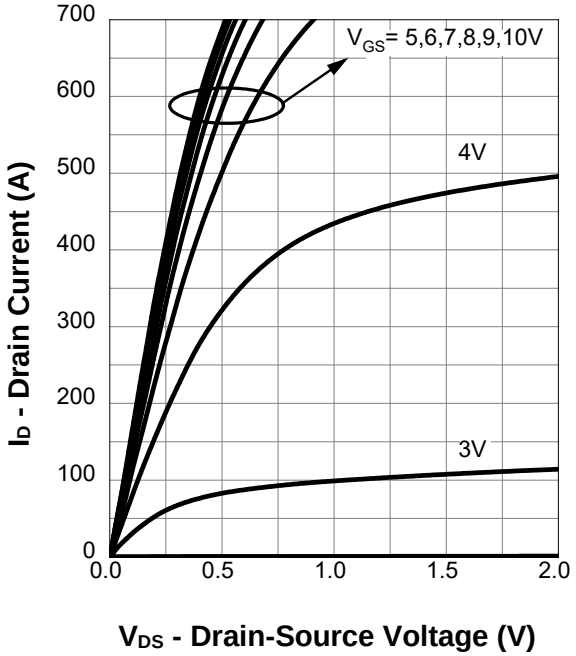


Transient Thermal Impedance

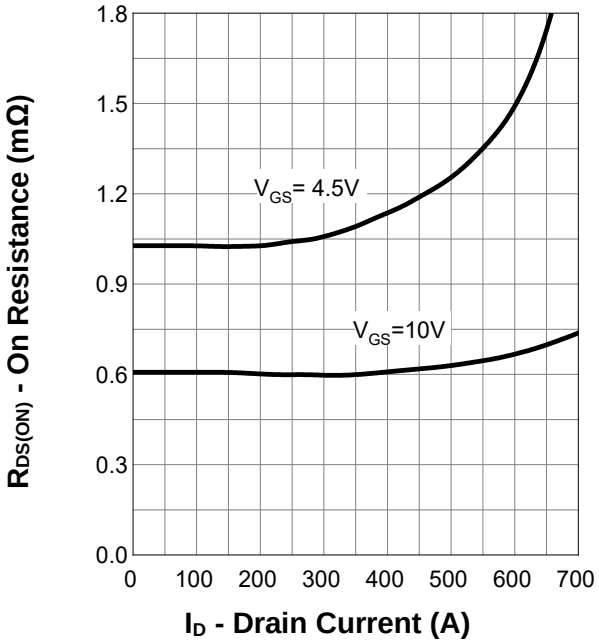


Typical Electrical & Thermal Characteristics

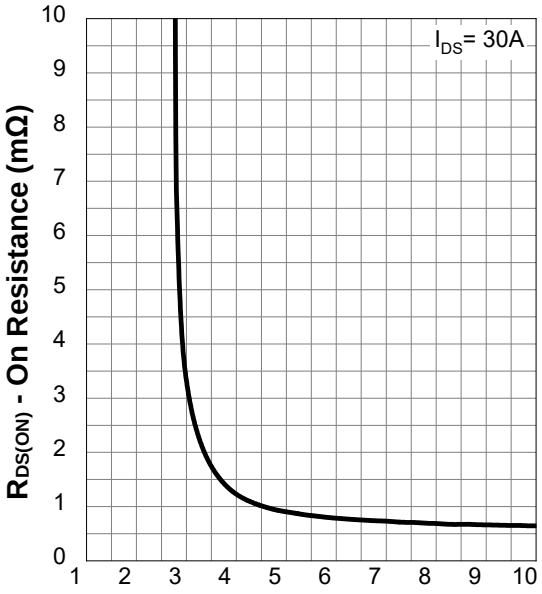
Output Characteristics



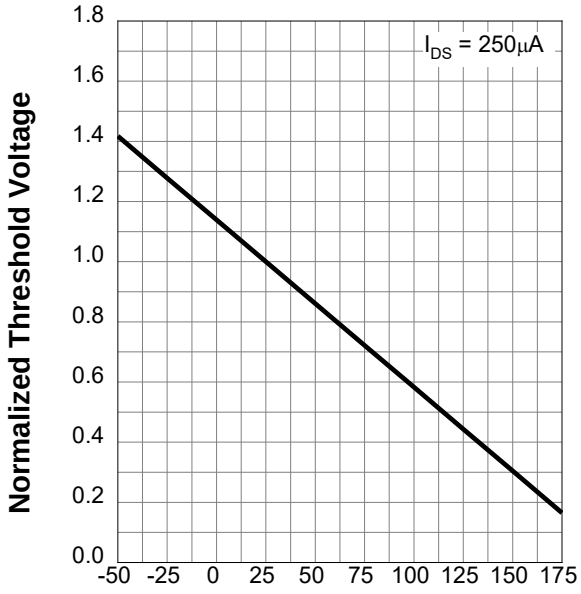
On Resistance



Transfer Characteristics

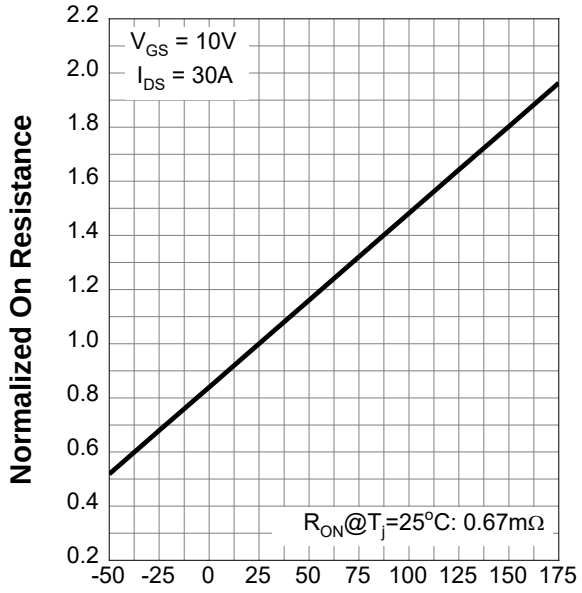


Normalized Threshold Voltage

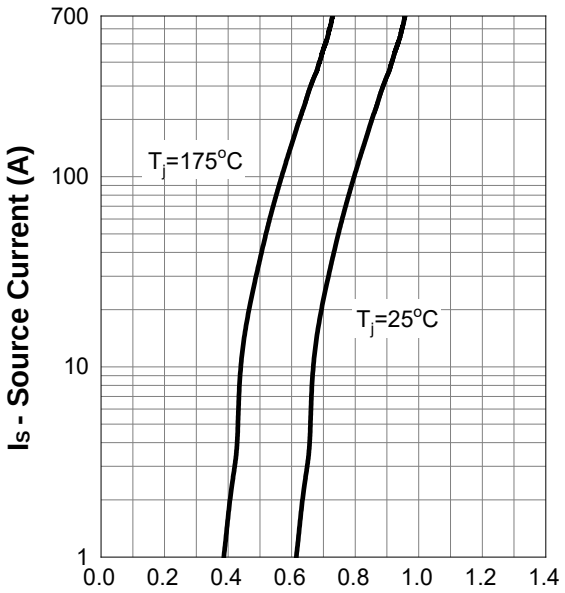


Typical Electrical & Thermal Characteristics

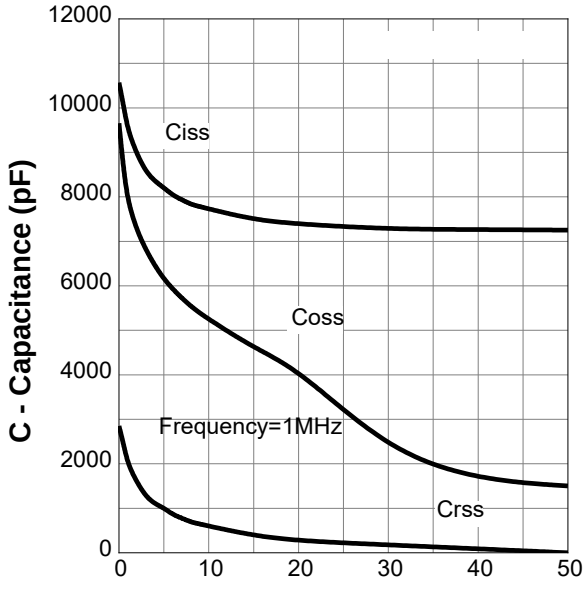
Normalized On Resistance



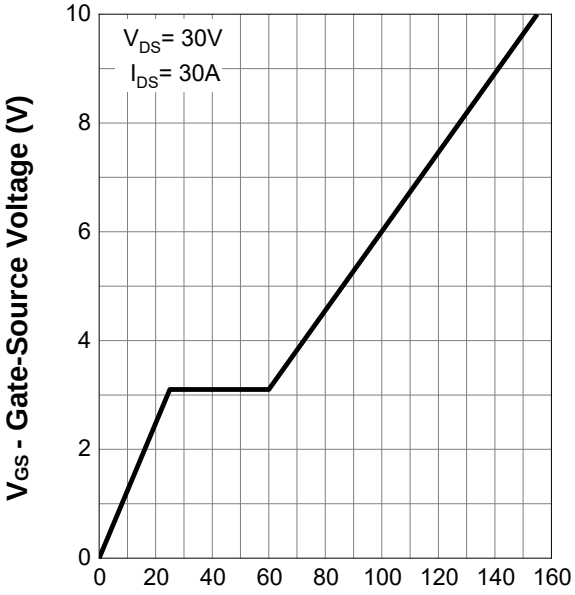
Diode Forward Current



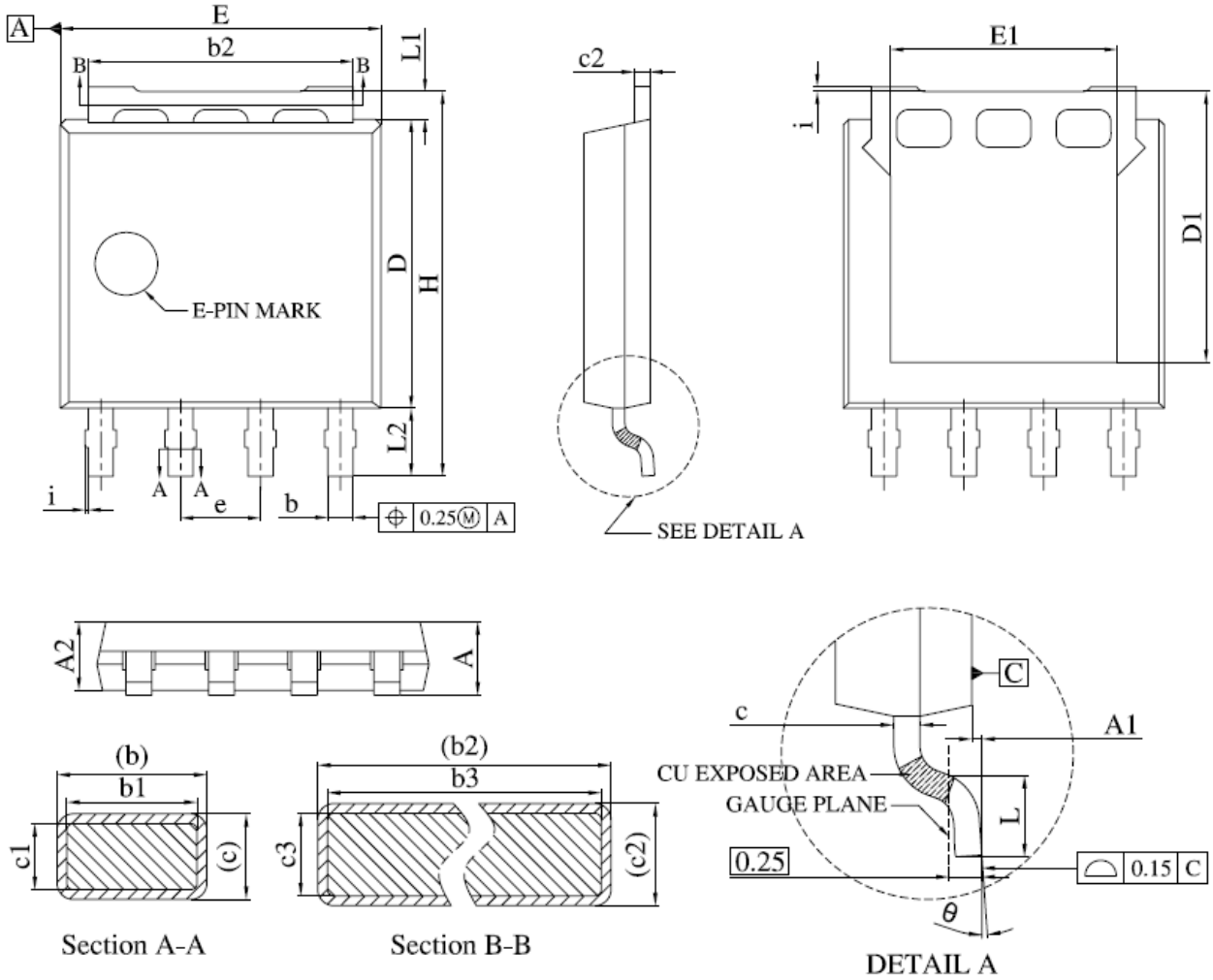
Capacitance



Gate Charge



Package Mechanical Data(LFPAK5x6-4L)



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	1.00	1.30
A1	0.00	0.15
A2	0.98	1.12
b	0.35	0.50
b1	0.32	0.46
b2	4.02	4.41
b3	4.00	4.37
c	0.19	0.25
c1	0.17	0.23
c2	0.24	0.30
c3	0.22	0.28
D	4.45	4.70
D1	-	4.45
E	4.95	5.30
E1	3.50	3.70
e	1.27 BSC.	

Symbol	Dimensions In Millimeters	
	MIN.	MAX.
H	5.95	6.25
i	-	0.25
L	0.40	0.85
L1	0.27	0.57
L2	0.80	1.30
θ	0°	8°