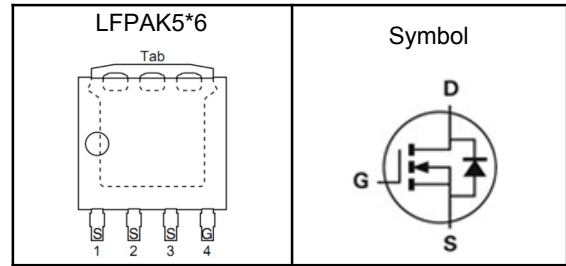


N-Channel Enhancement Mode MOSFET
Features

- High Speed Power Switching
- Reliable and Rugged
- ROHS Compliant
- 100% Avalanche Tested

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description


V_{DSS}	45	V
$R_{DS(ON)-Typ}$	0.6	m Ω
I_D	323	A

Absolute Maximum Ratings ($T_A=25^{\circ}C$, Unless Otherwise Noted)

Symbol	Parameter	Rating	Unit
V_{DSS}	Drain-Source Voltage	45	V
V_{GSS}	Gate-Source Voltage	± 20	V
T_J	Maximum Junction Temperature	-55 to 175	$^{\circ}C$
T_{STG}	Storage Temperature Range	-55 to 175	$^{\circ}C$
$I_{DM}^{①}$	Pulse Drain Current Tested	807	A
I_D	Continuous Drain Current	323	A
P_D	Maximum Power Dissipation	166	W
E_{AS}	Avalanche Energy, Single pulse	151	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	45	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.9	$^{\circ}C/W$

Note ① : Max. current is limited by bonding wire.

Note ② : UIS tested and pulse width are limited by maximum junction temperature 150 $^{\circ}C$.

Note ③ : Surface Mounted on 1in² FR-4 board with 1oz.



N-Channel Enhancement Mode MOSFET

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	45	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=36V, V_{GS}=0V$	---	---	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	---	3.5	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_D=50A$	---	0.6	0.8	m Ω
Dynamic Characteristics ^⑤						
C_{iss}	Input Capacitance	$V_{DS}=20V, V_{GS}=0V, \text{Freq.}=1\text{MHz}$	---	6293	---	pF
C_{oss}	Output Capacitance		---	2150	---	
C_{rss}	Reverse Transfer Capacitance		---	103	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DS}=25V, V_{GS}=10V, I_D=1A, R_G=1\Omega$	---	20	---	nS
T_r	Turn-on Rise Time		---	11	---	
$T_{d(off)}$	Turn-off Delay Time		---	48	---	
T_f	Turn-off Fall Time		---	100	---	
Q_g	Total Gate Charge	$V_{DS}=20V, V_{GS}=10V, I_D=20A$	---	84	---	nC
Q_{gs}	Gate-Source Charge		---	25	---	
Q_{gd}	Gate-Drain Charge		---	12	---	
Source-Drain Characteristics						
V_{SD}	Diode Forward Voltage	$I_S=10A, V_{GS}=0V$	---	0.74	---	V
t_{rr}	Reverse Recovery Time	$I_F=10A, dI_F/dt=100A/\mu s$	---	68	---	nS
Q_{rr}	Reverse Recovery Charge		---	98	---	nC

Note ④: Pulse test (pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$).

Note ⑤: Guaranteed by design, not subject to production testing.



N-Channel Enhancement Mode MOSFET

Typical Characteristics

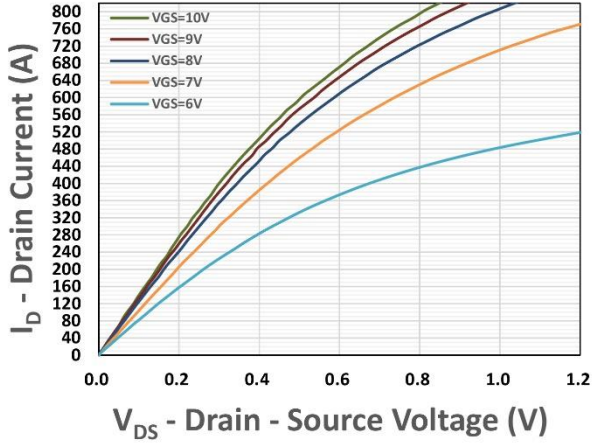


Figure 1. Output Characteristics

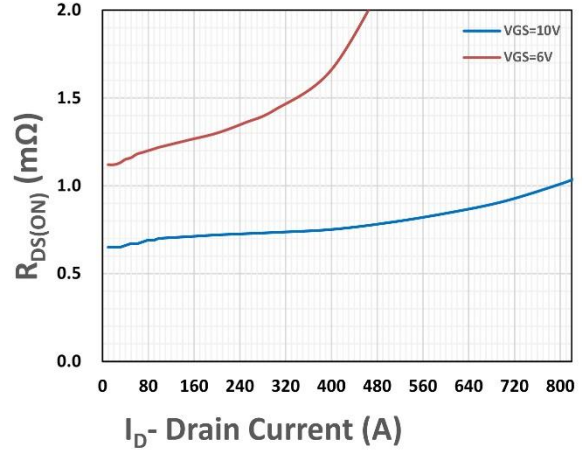


Figure 2. On-Resistance vs. I_D

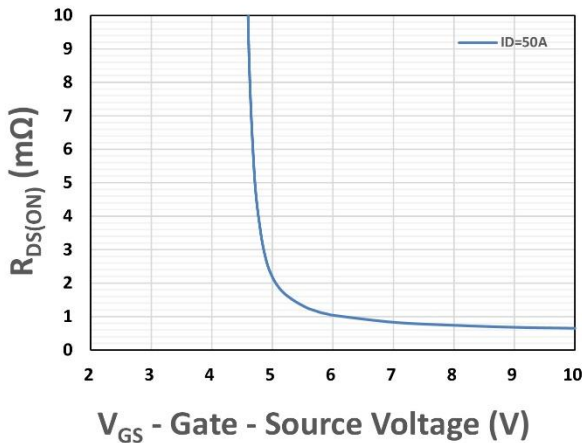


Figure 3. On-Resistance vs. V_{GS}

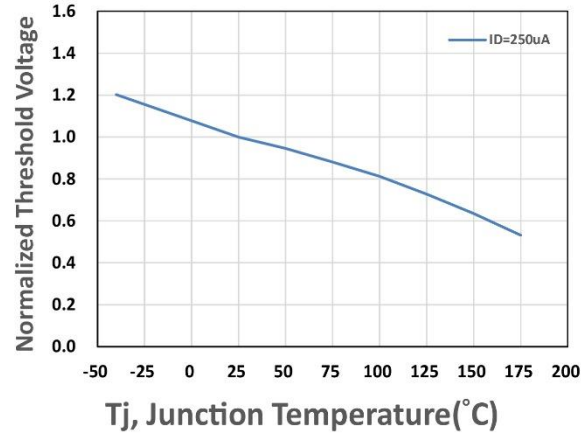


Figure 4. Gate Threshold Voltage

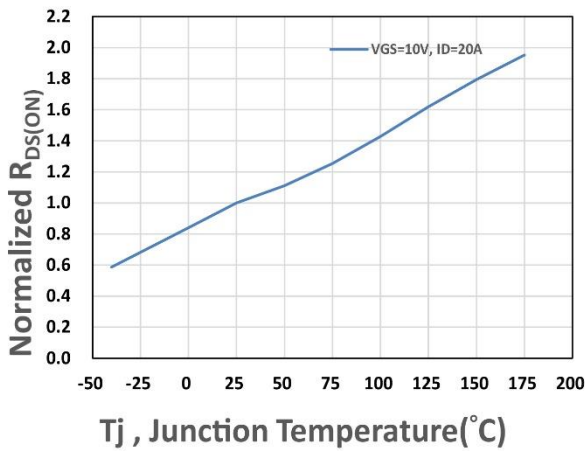


Figure 5. Drain-Source On Resistance

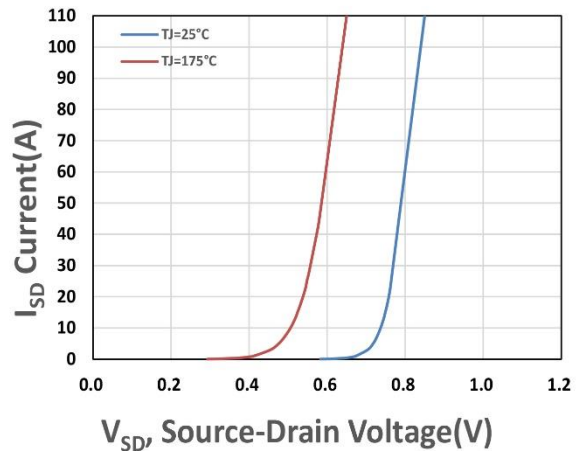
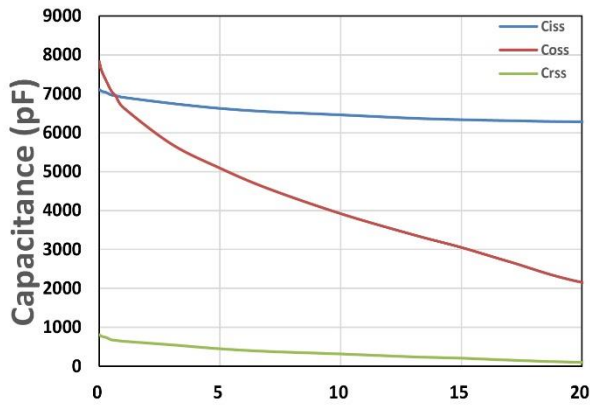


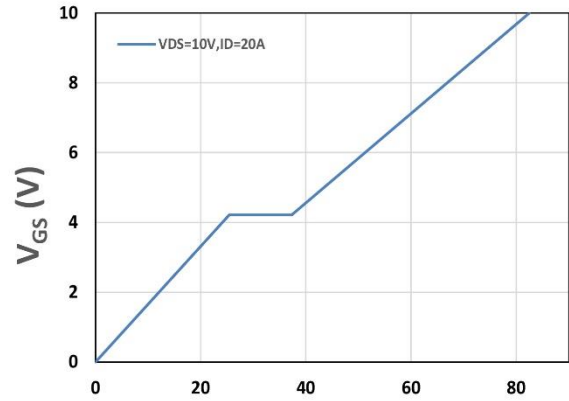
Figure 6. Source-Drain Diode Forward



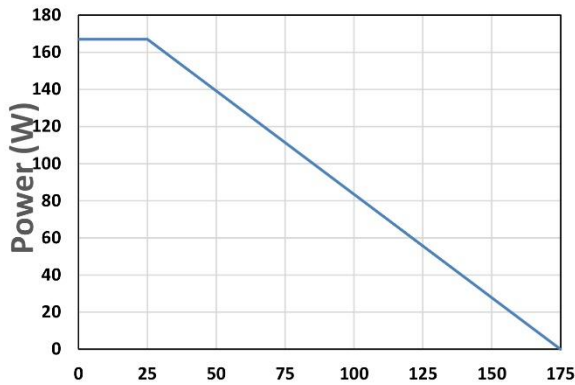
N-Channel Enhancement Mode MOSFET



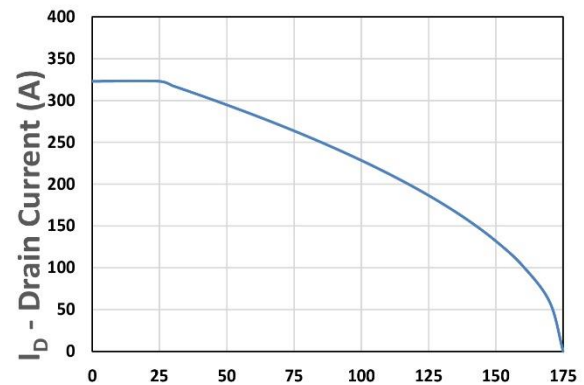
V_{DS} - Drain - Source Voltage (V)
Figure 7. Capacitance



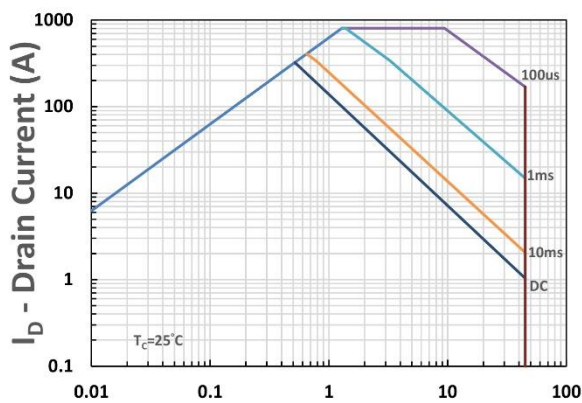
Q_g , Total Gate Charge (nC)
Figure 8. Gate Charge Characteristics



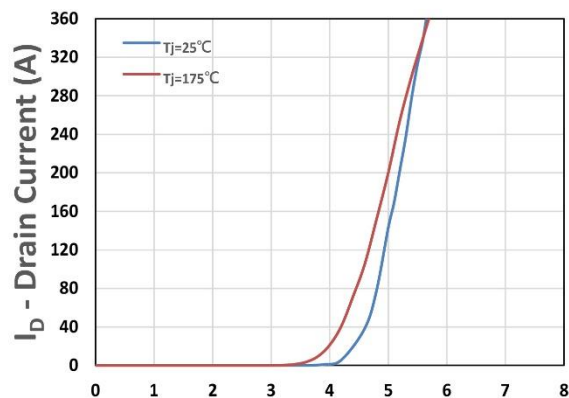
T_c -Case Temperature (°C)
Figure 9. Power Dissipation



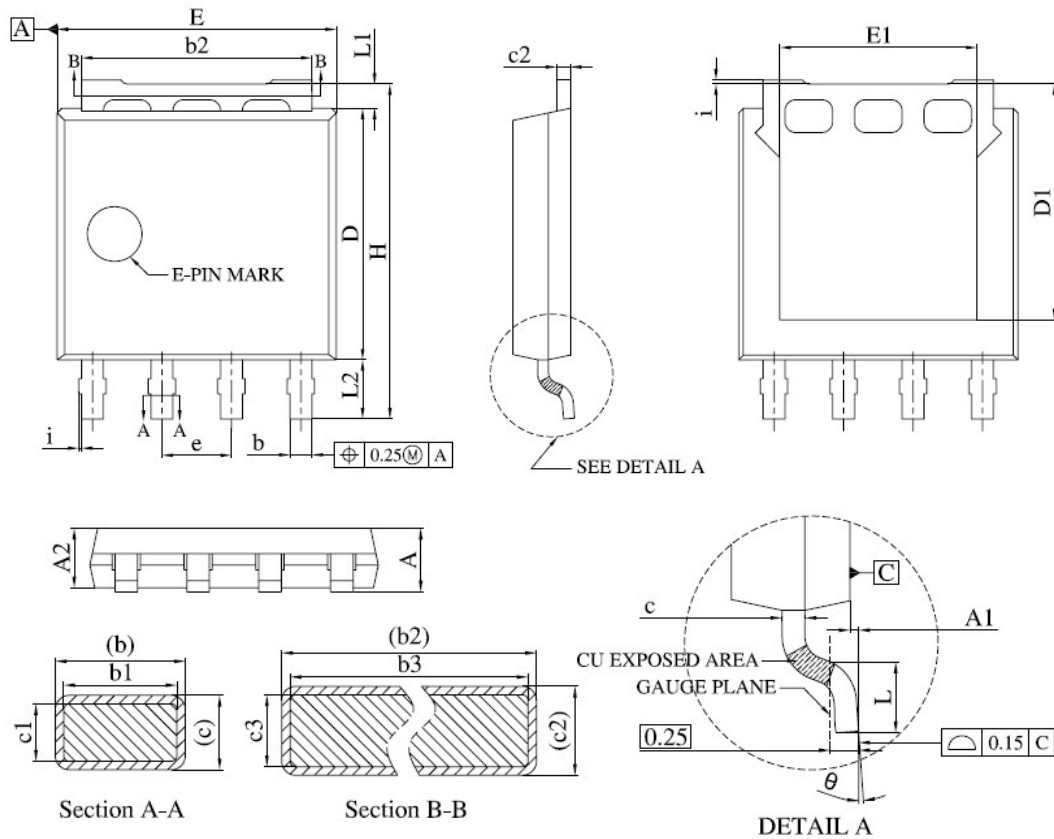
T_c -Case Temperature (°C)
Figure 10. Drain Current



V_{DS} - Drain-Source Voltage (V)
Figure 11. Safe Operating Area



V_{GS} - Gate - Source Voltage (V)
Figure 12. Transfer Characteristics

N-Channel Enhancement Mode MOSFET
LFPAK5*6 Package Outline Data


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
theta	0°	8°