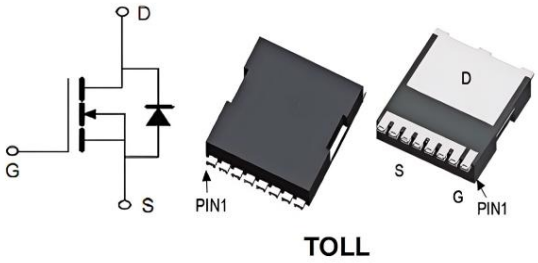
N-Channel Power MOSFET

Parameter	Value	Unit
V_{DS}	120	V
$R_{DS(on)}$	1.9	mΩ
I_D	300	A



TOLL

Features

- Fast Switching
- Low Gate Charge and Rdson
- Low Reverse transfer capacitance
- 100% Single Pulse avalanche energy Test

Applications

- High Speed Power switching
- DC-DC Converter
- Power Management

Maximum Rated Values(Ta=25℃ unless otherwise noted)

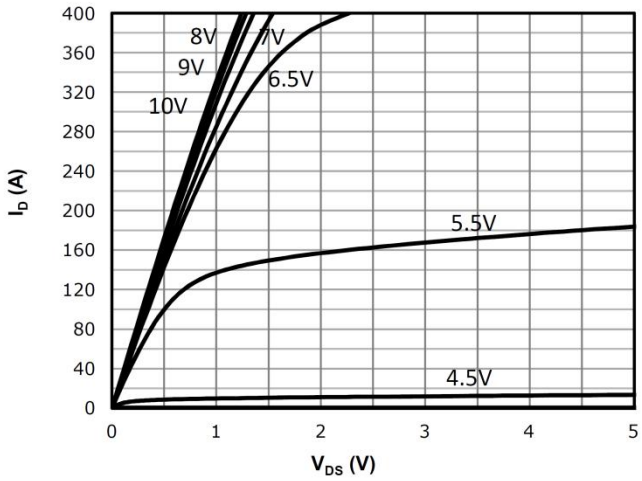
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	120	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current1 (Tc=25℃)	I_D	300	A
Continuous Drain Current1 (Tc=100℃)	I_D	200	A
Pulsed Drain Current	I_{DM}	1200	A
Single Pulse Avalanche Energy[1]	E_{AS}	2056	mJ
Power Dissipation (Tc=25℃)	P_D	320	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	0.39	℃/W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

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

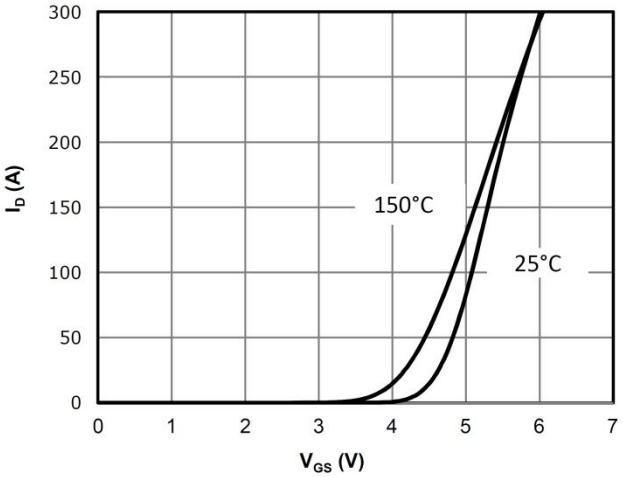
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250μA, V_{GS}=0V	120	130	-	V
Drain Cut-Off Current	I_{DSS}	V_{DS}=96V, V_{GS}=0V	-	-	1	μA
Gate Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±0.1	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.5	3.3	4.5	V
Drain-Source ON Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=50A	-	1.9	2.5	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=60V, V_{GS}=0V, f =1.0MHz	-	10423	-	pF
Output Capacitance	C_{oss}		-	713	-	
Reverse Transfer Capacitance	C_{rss}		-	40	-	
Total Gate Charge	Q_g	V_{DS}=60V , V_{GS}=10V , I_D=75A	-	175	-	nC
Gate-Source Charge	Q_{gs}		-	47.5	-	
Gate-Drain Charge	Q_{gd}		-	48.5	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V, V_{DS}=60V, I_D=75A R_G=1.6Ω	-	20	-	nS
Rise Time	t_r		-	23	-	
Turn-Off Delay Time	$t_{d(off)}$		-	65	-	
Fall Time	t_f		-	25	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	I_S=1A, V_{GS}=0V	-	-	1.2	V
Maximum Body-Diode Continuous Current	I_S		-	-	300	A
Reverse Recovery Time	T_{rr}	I_S=100A, di/dt=100A/us, T_J=25℃	-	112	-	nS
Reverse Recovery Charge	Q_{rr}		-	289	-	nC

Note:
1.The test condition is VDD=50V,VGS=10V,L=0.5mH,RG=25Ω

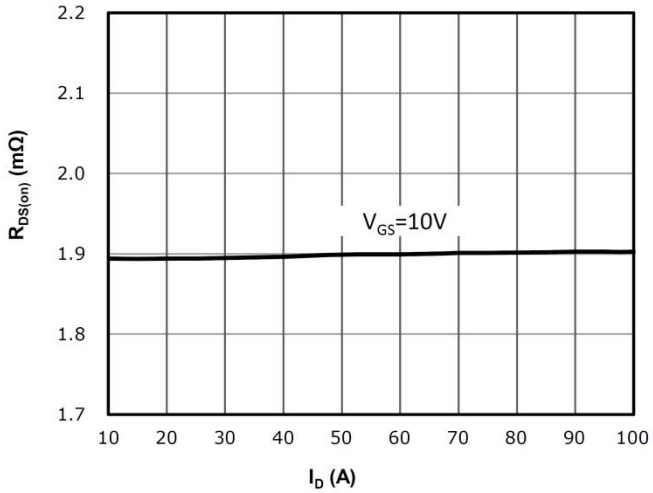
Typical Characteristics



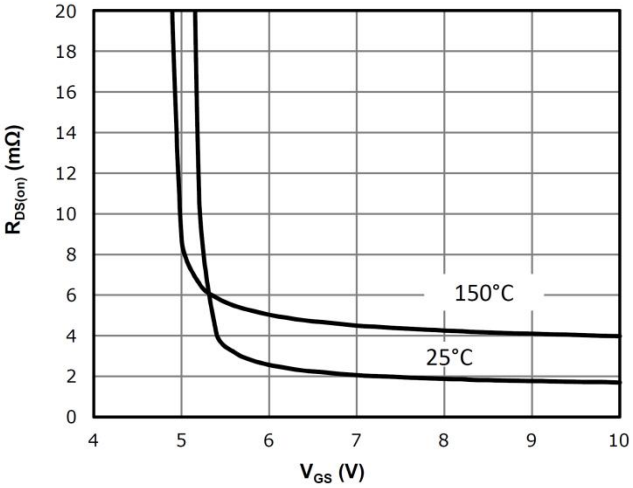
Output Characteristics



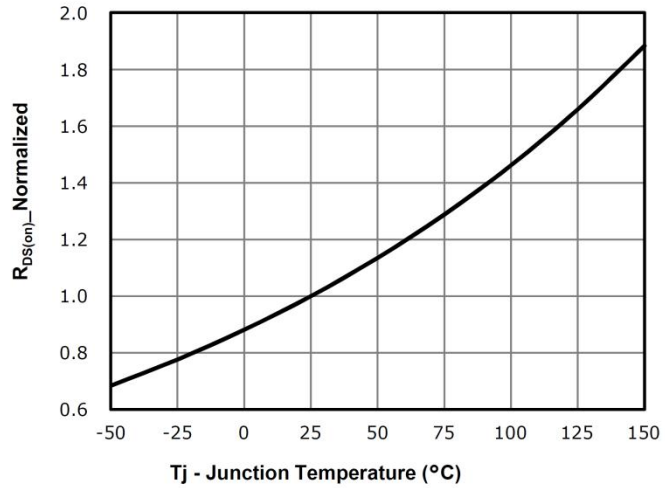
Transfer Characteristics



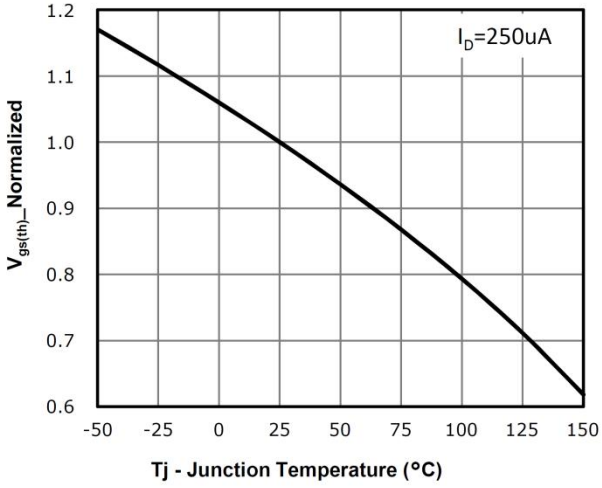
Rds(on) vs Drain Current and Gate Voltage



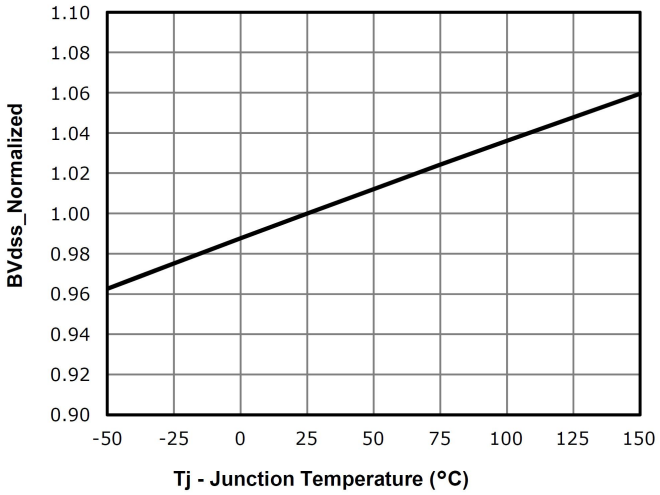
Rds(on) vs Gate Voltage



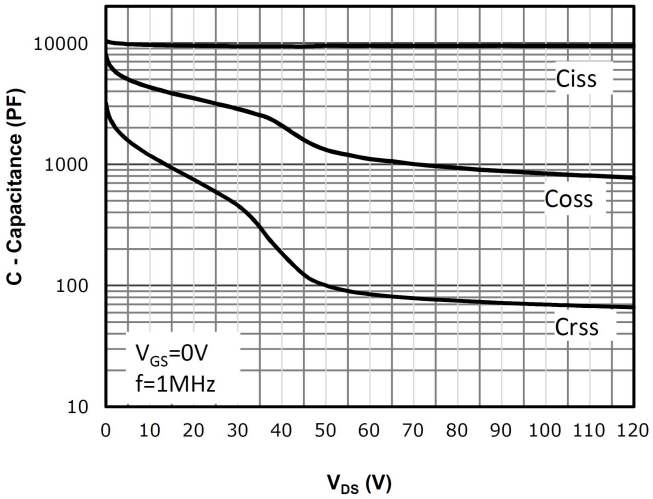
Rds(on) vs. Temperature



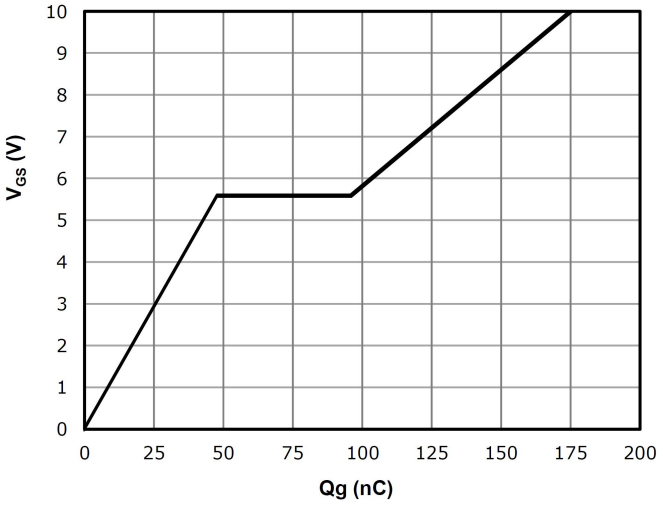
Vgs(th) vs. Temperature



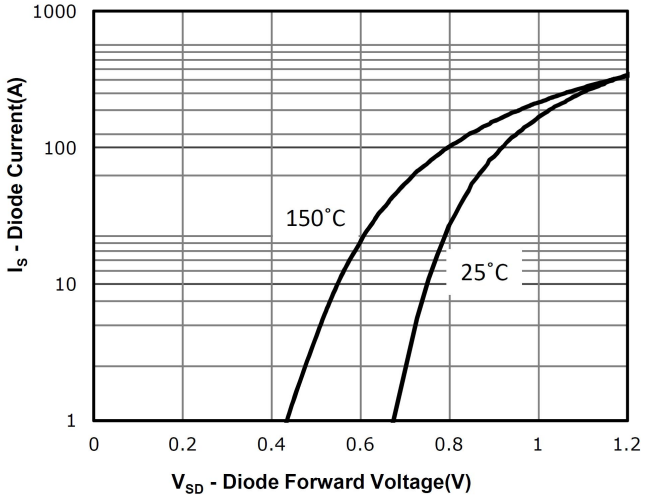
BVdss vs. Temperature



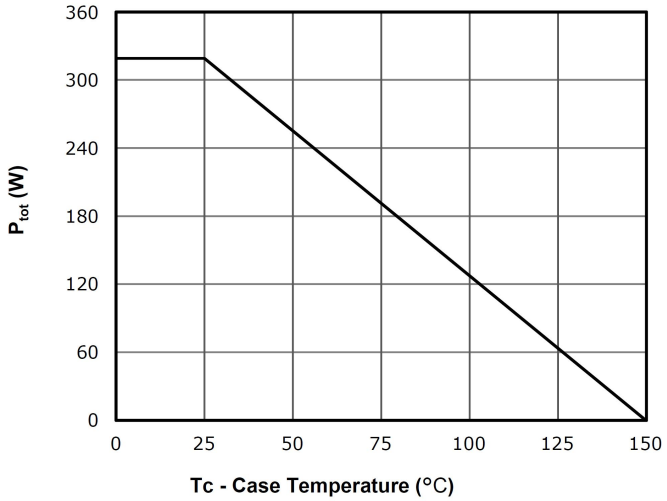
Capacitance Characteristics



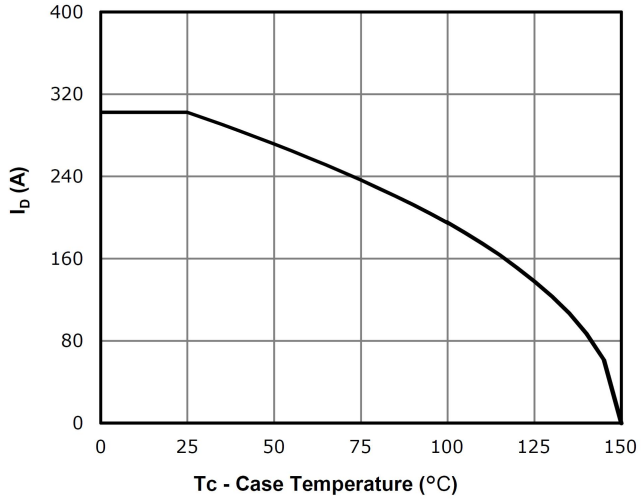
Gate Charge Characteristics



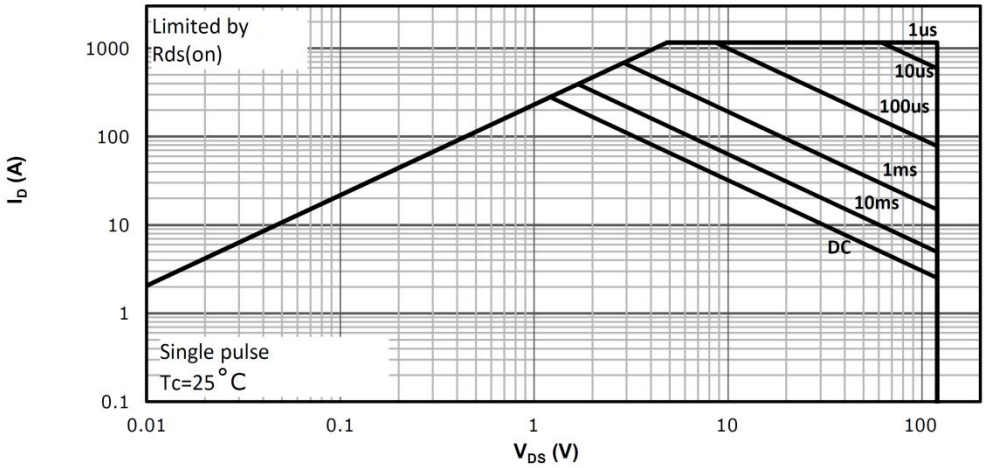
Body-diode Forward Characteristics



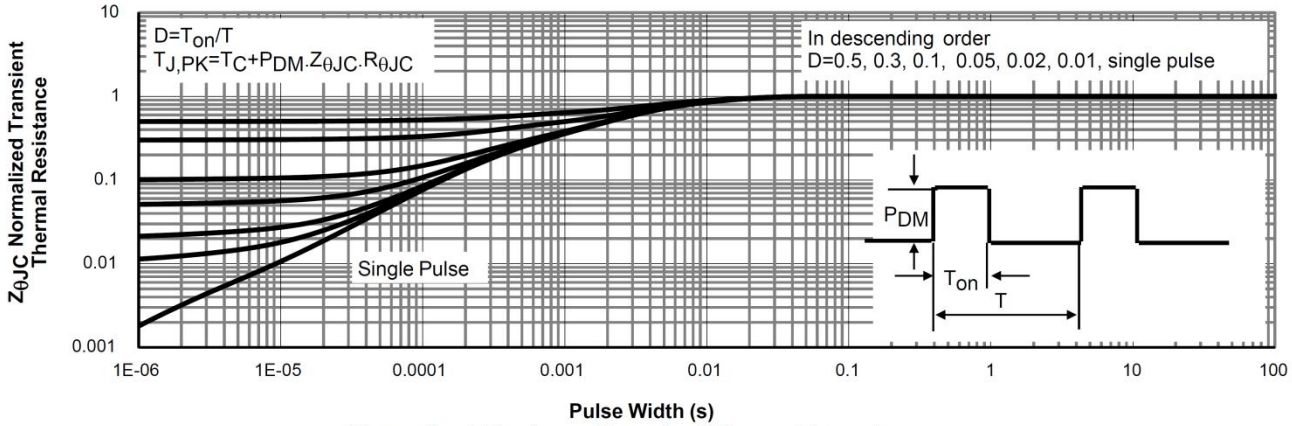
Power Dissipation



Drain Current Derating

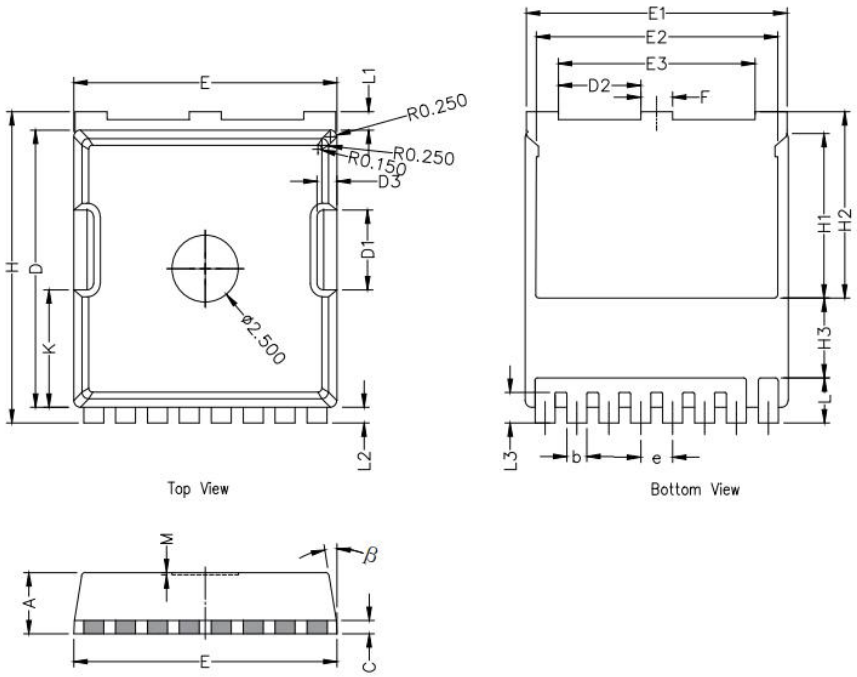


Safe Operating Area



Normalized Maximum Transient Thermal Impedance

Package Outlines



Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A	2.15	2.30	2.45
b	0.60	0.75	0.90
C	0.40	0.50	0.60
D	10.18	10.38	10.58
D1	3.15	3.3	3.45
E	9.70	9.90	10.10
E1	9.65	9.80	9.95
E2	7.90	--	9.15
E3	7.20	--	8.40
e	1.20 BSC		
F	1.05	1.20	1.35
H	11.45	11.70	11.95
H2	6.75	7.00	7.3
H3	3.00 BSC		
L	1.20	--	2.10
L1	0.50	0.75	0.90
L2	0.45	0.6	0.75
M	0.08 REF.		
β	8°	10°	12°

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