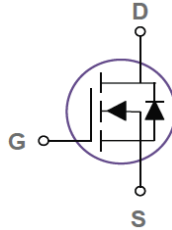


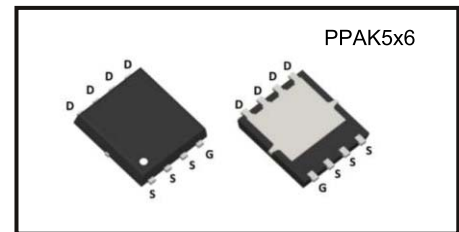
Surface Mount N-Channel Mosfet

Features

- Fast Switching
- Low Gate Charge & Ciss
- 100% Avalanche Tested
- Improved dv/dt Capability
- RoHS 2.0 Compliant



V_{DS}	60V
$I_D(@25^{\circ}C)$	209A
$R_{DS(ON) \text{ max.}}$	1.5m Ω



Applications

- Power Switching Application

Absolute Maximum Ratings

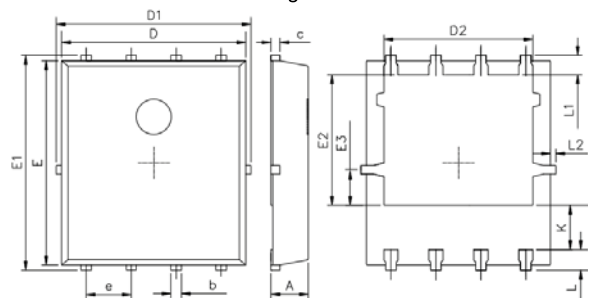
(Tc = 25°C unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain Source Voltage	V_{DS}	60	V
Gate Source Voltage	V_{GS}	± 20	V
Drain Current Continuous	I_D	209 132	A
Drain Current Pulsed	I_{DM}	836	A
Single Pulse Avalanche Energy	E_{AS}	256	mJ
Power Dissipation	P_D	125	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction to Case	$R_{\theta JC}$	1.0	°C/W

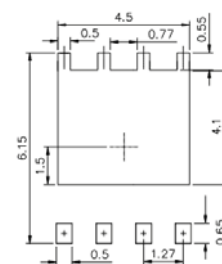
Notes:

1. The value of $R_{\theta JC}$ is measured in a still air environment with $T_A = 25^{\circ}C$ and the maximum allowed junction temperature of $150^{\circ}C$. The value in any given application depends on the user's specific board design.
2. The power dissipation P_D is based on $T_{J(MAX)} = 150^{\circ}C$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.
3. Single pulse width limited by junction temperature $T_{J(MAX)} = 150^{\circ}C$.
4. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to case $R_{\theta JC}$ and case to ambient.
5. The maximum current rating is package limited.
6. The EAS data shows Max. rating. The test condition is $V_{DS} = 50V, I_L = 0.5mH$

Package Dimensions



Recommended Land Pattern



UNIT:mm

DIM.	MIN	NOM	MAX
A	0.90	1.00	1.10
b	0.25	0.35	0.50
c	0.10	0.20	0.30
D	4.80	5.00	5.30
D1	4.90	5.10	5.50
D2	3.92	4.02	4.20
E	5.65	5.75	5.85
E1	5.90	6.05	6.20
E2	3.325	3.525	3.775
E3	0.80	0.90	1.00
e		1.27	
L	0.40	0.55	0.70
L1		0.65	
L2	0.00		0.15
K	1.00	1.30	1.50

Electrical Characteristics @ T_c =25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
OFF Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _{DS} =0.25mA	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{GS} =0V, V _{DS} =60V	-	-	1	μA
Gate To Source Forward Leakage	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
ON Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =0.25mA	2.0	3.0	4.0	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =50A	-	1.2	1.5	mΩ
Gate Resistance	R _g	V _{DS} =V _{GS} =0V, f=1.0MHz	-	0.8	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =5V, I _D =50A	-	92	-	S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =30V	-	5339	-	pF
Output Capacitance	C _{oss}	V _{GS} =0V	-	1274	-	
Reverse Transfer Capacitance	C _{rss}	Freq.=1.0MHz	-	128	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{DD} =11.7V V _{GS} =10V I _D =50A R _G =2.5Ω	-	25	-	ns
Rise Time	t _r		-	20	-	
Turn-Off Delay Time	t _{d(off)}		-	38	-	
Fall Time	t _f		-	11	-	
Total Gate Charge	Q _g	V _{DS} =30V	-	77	-	nC
Gate to Source Charge	Q _{gs}	V _{GS} =10V	-	27	-	
Gate to Drain Charge	Q _{gd}	I _{DS} =50A	-	10	-	
Source-Drain Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =50A	-	0.83	1.2	V
Body Continuous Source Current	I _S		-	-	209	A
Body Pulsed Current	I _{SM}		-	-	836	A
Reverse Recovery Time	T _{rr}	I _S =8A, T _J =25°C di/dt=100A/μs	-	88	-	ns
Reverse Recovery Charge	Q _{rr}		-	258	-	nC

Typical Performance Characteristics

Figure 1. Output Characteristics

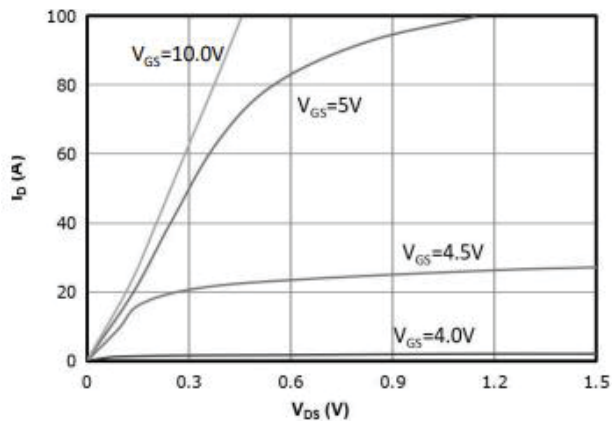


Figure 2. Transfer Characteristics

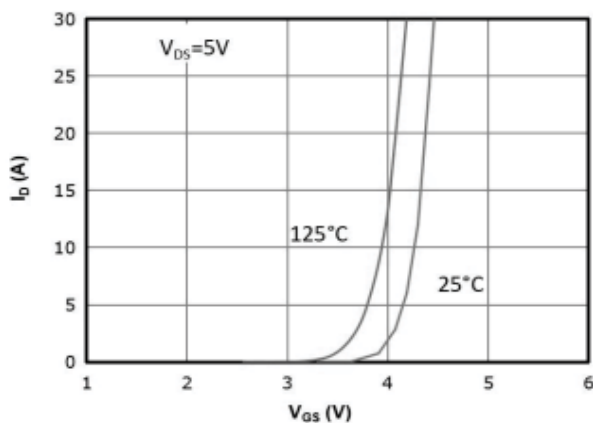


Figure 3. Avalanche Energy Derating Curve vs Junction Temperature

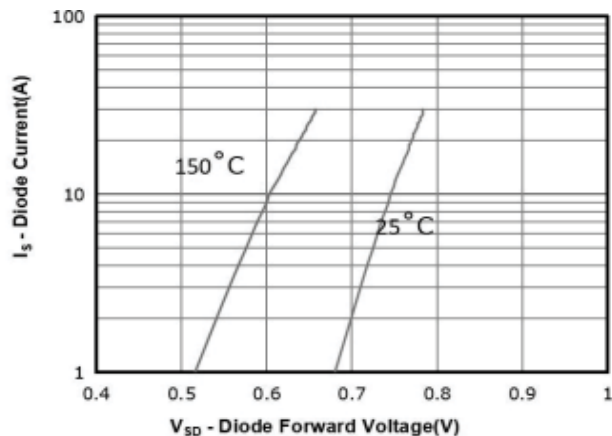


Figure 4. Normalized On Resistance vs Junction Temperature

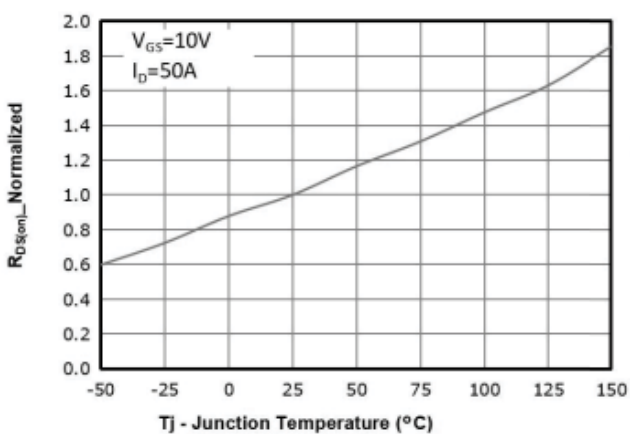


Figure 5. Gate Charge Characteristics

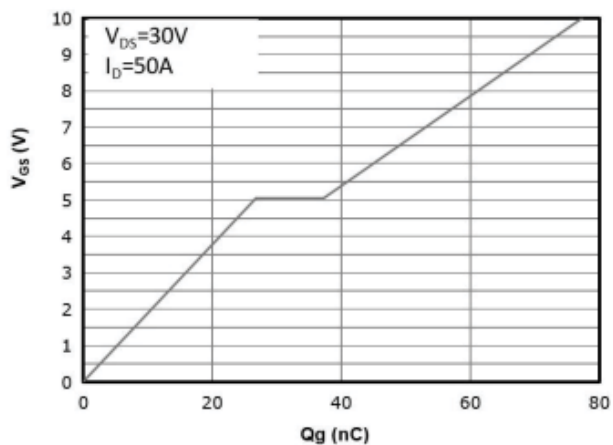
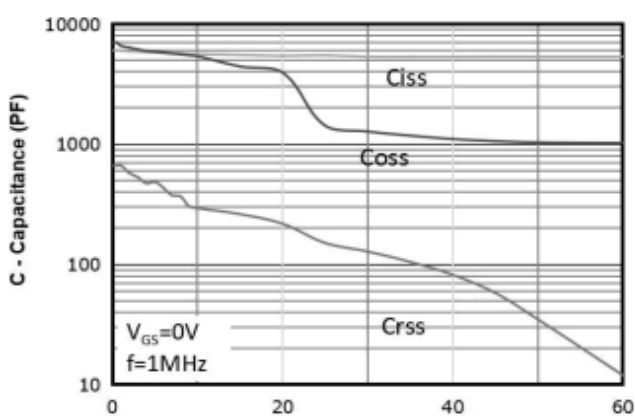


Figure 6. Capacitance Characteristics



Typical Performance Characteristics

Figure 7. Max. Power Dissipation vs Case Temperature

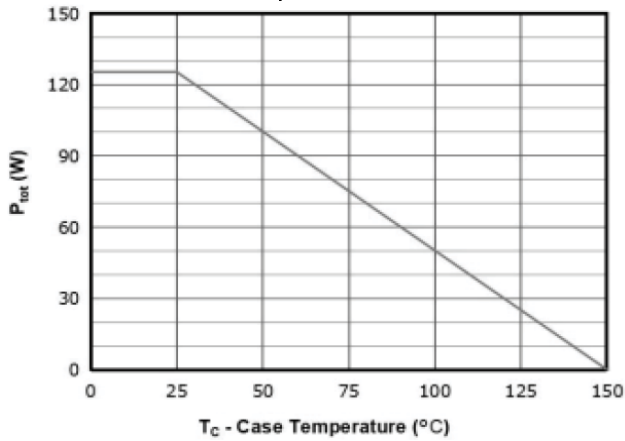


Figure 8. Normalized Threshold Voltage vs Case Temperature

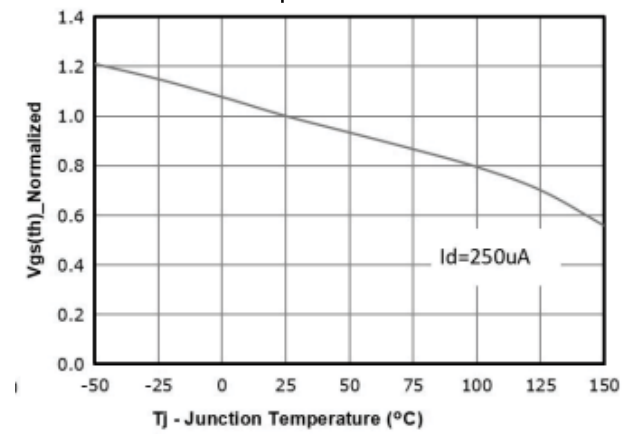


Figure 9. Normalized Threshold Voltage vs Junction Temperature

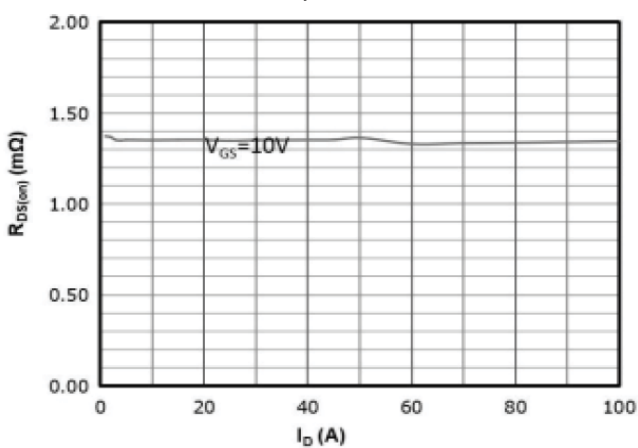


Figure 10. Drain-to-Source On Resistance vs Gate Voltage and Drain Current

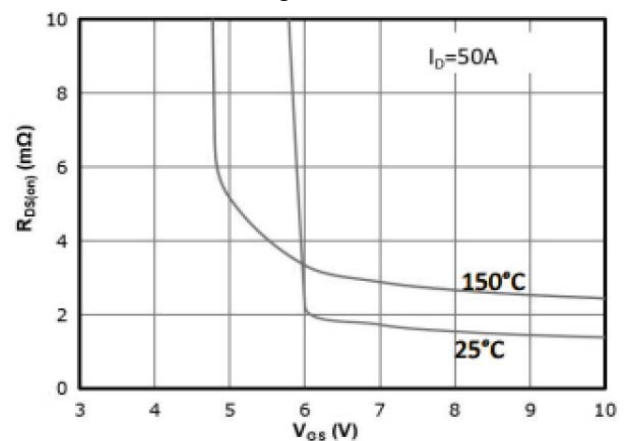


Figure 11. Max. Safe Operating Area

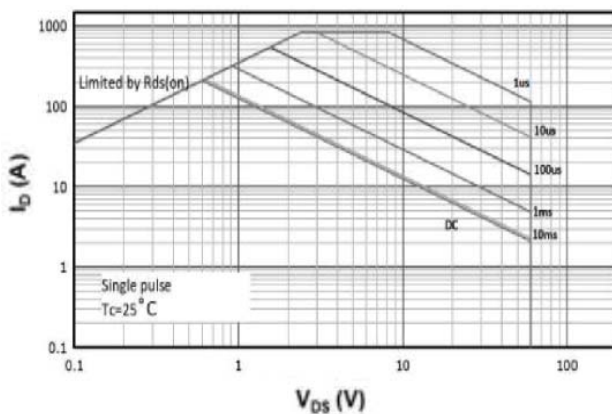
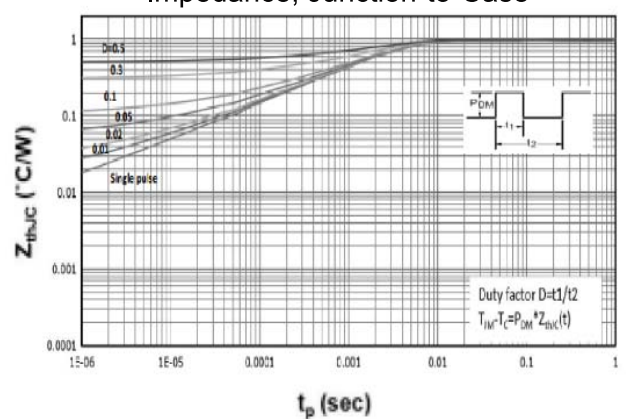


Figure 12. Max. Effective Transient Thermal Impedance, Junction-to-Case



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