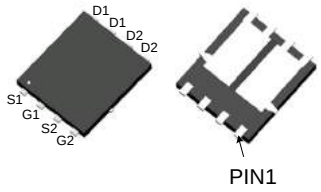
■ PRODUCT CHARACTERISTICS

V_{DSS}	60V
R_{DS} (on)typ(@V_{GS} =10 V)	22.5mΩ
R_{DS} (on)typ(@V_{GS} =4.5 V)	28mΩ
I_D	20A

Pin description



■ FEATURE

Low $R_{DS(ON)}$

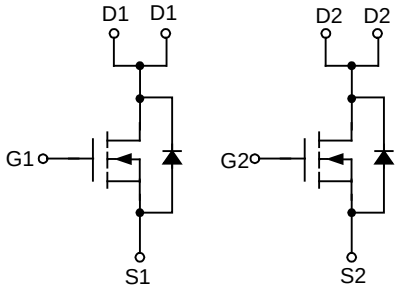
Low gate charge

Pb-free lead plating

■ APPLICATIONS

Motor driving in power tool

E-vehiche robotics



N+N MOSFET

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-free	Halogen		
N/A	MOT6929G	PDFN5X6	5000Pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS (T_C = 25°C, unless otherwise specified)

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current-Continuous	T_C=25℃	I_D	20	A
	T_C=100℃	I_D	13	A
Pulsed Drain Curren		I_{DM}	80	A
Avalanche Energy		E_{AS}	13.5	mJ
Maximum Power Dissipation	T_C=25℃	P_D	28	W
	T_C=100℃	P_D	11.1	W
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55 To 150	℃
Thermal Resistance,Junction-to-Case		$R_{\theta JC}$	5.2	℃/W

■ Electrical Characteristics (T_C=25℃ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = 250μA, V_{GS} = 0V	60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 48V, V_{GS} = 0V	-	-	1.0	μA
		T_J = 55°C	-	-	5.0	
Gate-Body Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.2	-	2.5	V
Static Drain-Source ON-Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 5A	-	22.5	29	mΩ
		V_{GS} = 4.5V, I_D = 3A	-	28	38	mΩ
Forward Transconductance	g_{FS}	V_{DS} = 5V, I_D = 5A	-	17.0	-	S
Diode Forward Voltage	V_{SD}	I_S = 1A, V_{GS} = 0V	-	0.75	1.0	V
Diode Continuous Current	I_S	T_C = 25°C	-	-	23	A
DYNAMIC PARAMETERS						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 30V, f = 1MHz	-	288	-	pF
Output Capacitance	C_{oss}		-	92	-	pF
Reverse Transfer Capacitance	C_{rss}		-	22	-	pF
Gate Resistance	R_g	V_{GS} = 0V, V_{DS}= 0V, f = 1MHz	-	5.0	-	Ω
SWITCHING PARAMETERS						
Total Gate Charge	Q_g	V_{GS} = 0 to 10V V_{DS} = 30V, I_D = 5A	-	50	-	nC
Gate Source Charge	Q_{gs}		-	6	-	nC
Gate Drain Charge	Q_{gd}			15		nC
Turn-On DelayTime	$t_{D(on)}$	V_{GS} = 10V, V_{DS} = 30V R_L = 6Ω, R_{GEN} = 6Ω	-	6.0	-	nS
Turn-On Rise Time	t_r		-	62	-	nS
Turn-Off DelayTime	$t_{D(off)}$		-	18.5	-	nS
Turn-Off Fall Time	t_f		-	97	-	nS
Body Diode Reverse Recovery Time	t_{rr}	I_F = 5A, dI_F/dt = 100A/μs	-	13.0	-	nS
Body Diode Reverse Recovery Charge	Q_{rr}	I_F = 5A, dI_F/dt = 100A/μs	-	6.0	-	nC

■ TYPICAL CHARACTERISTICS

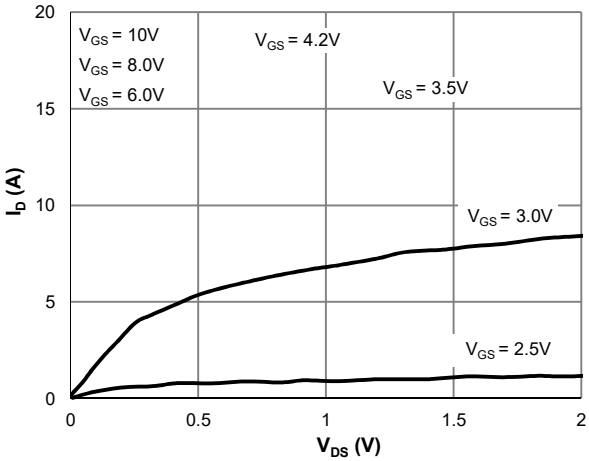


Figure 1: Saturation Characteristics

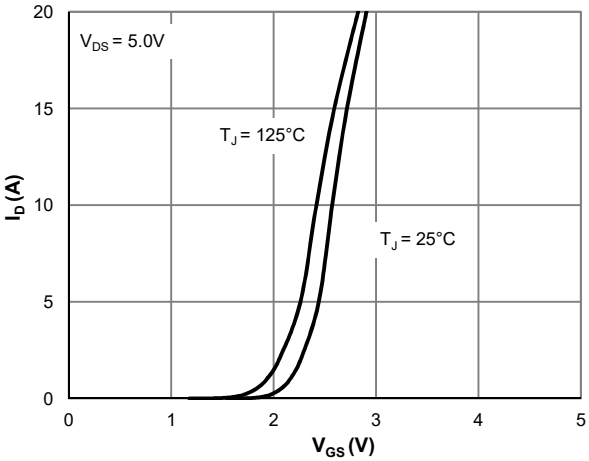


Figure 2: Transfer Characteristics

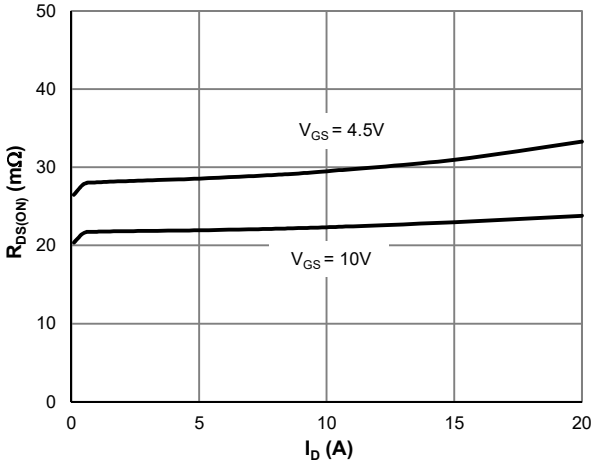


Figure 3: $R_{DS(ON)}$ vs. Drain Current

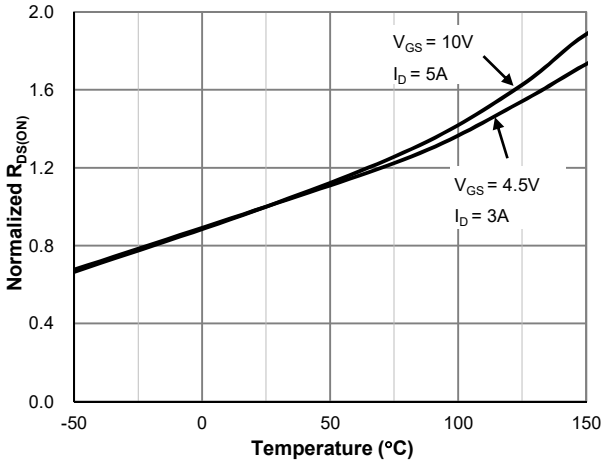


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

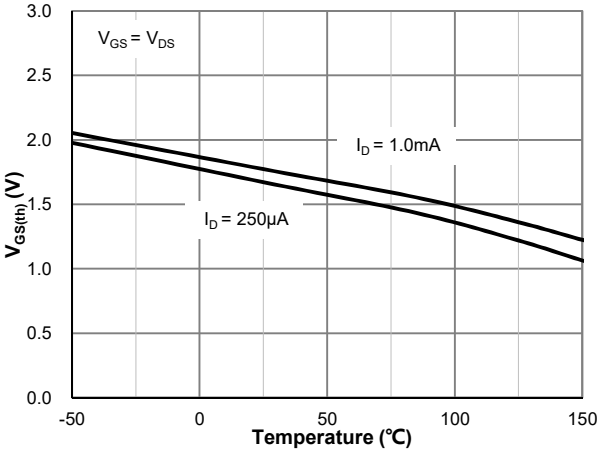


Figure 5: VGS(th) vs. Junction Temperature

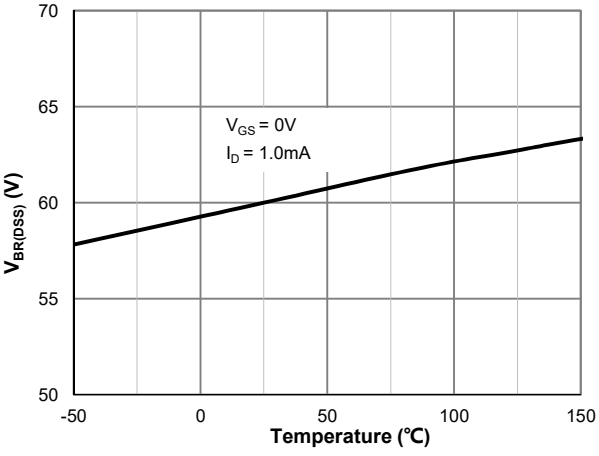


Figure 6: $V_{BR(DSS)}$ vs. Junction Temperature

■ TYPICAL CHARACTERISTICS(Cont.)

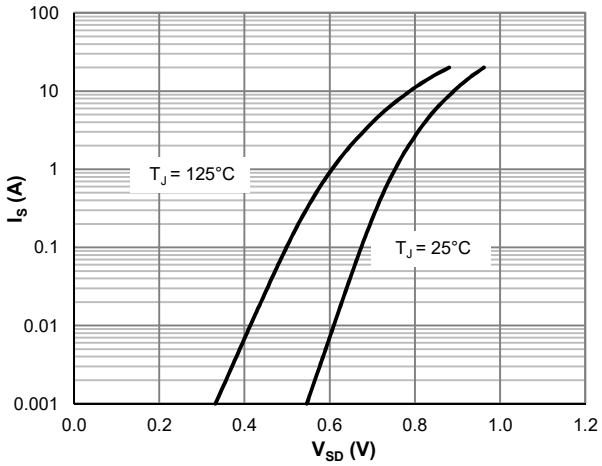


Figure 7: Body-Diode Characteristics

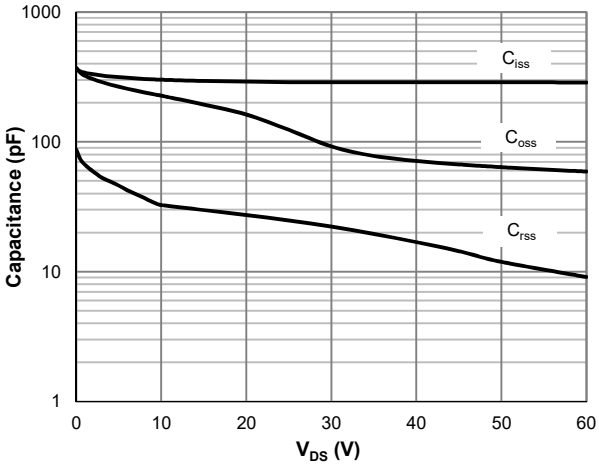


Figure 8: Capacitance Characteristics

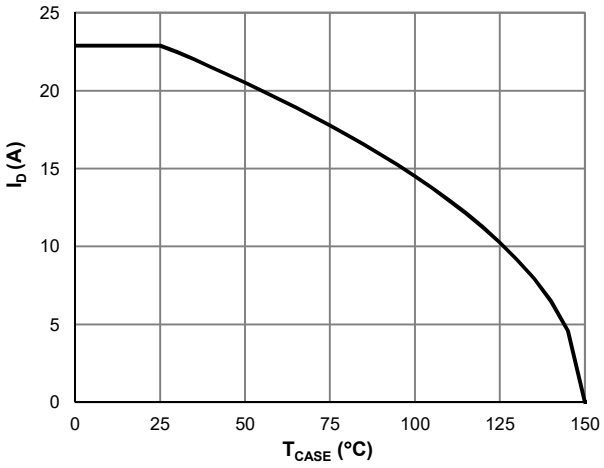


Figure 9: Current De-rating

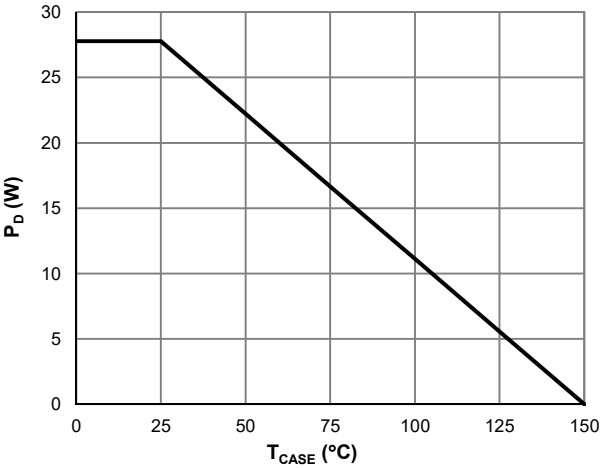


Figure 10: Power De-rating

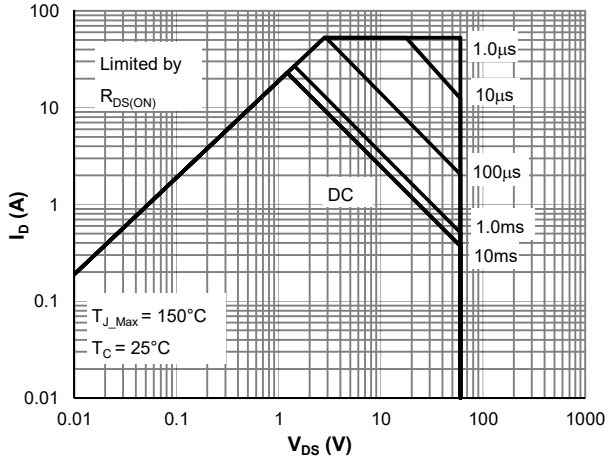


Figure 11: Maximum Safe Operating Area

■ TYPICAL CHARACTERISTICS(Cont.)

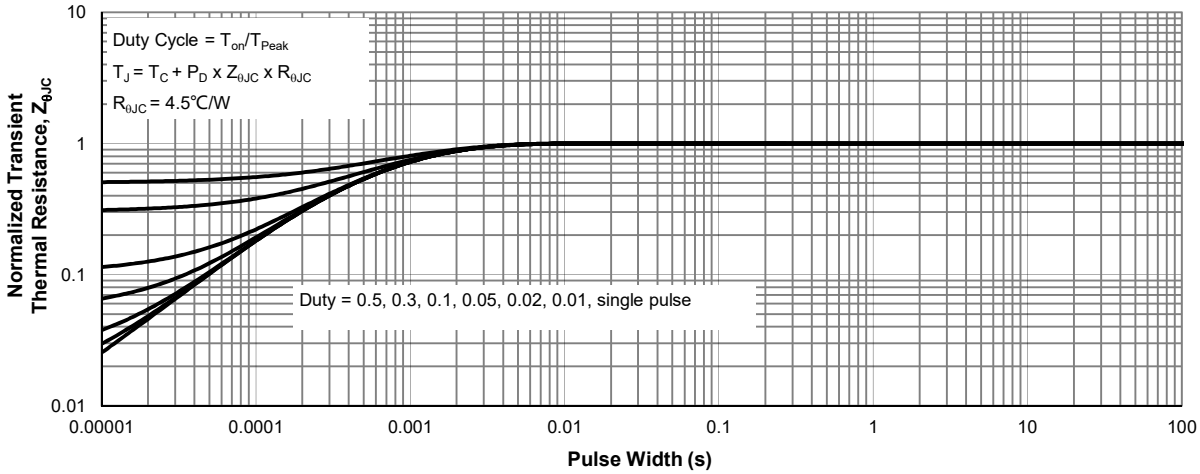
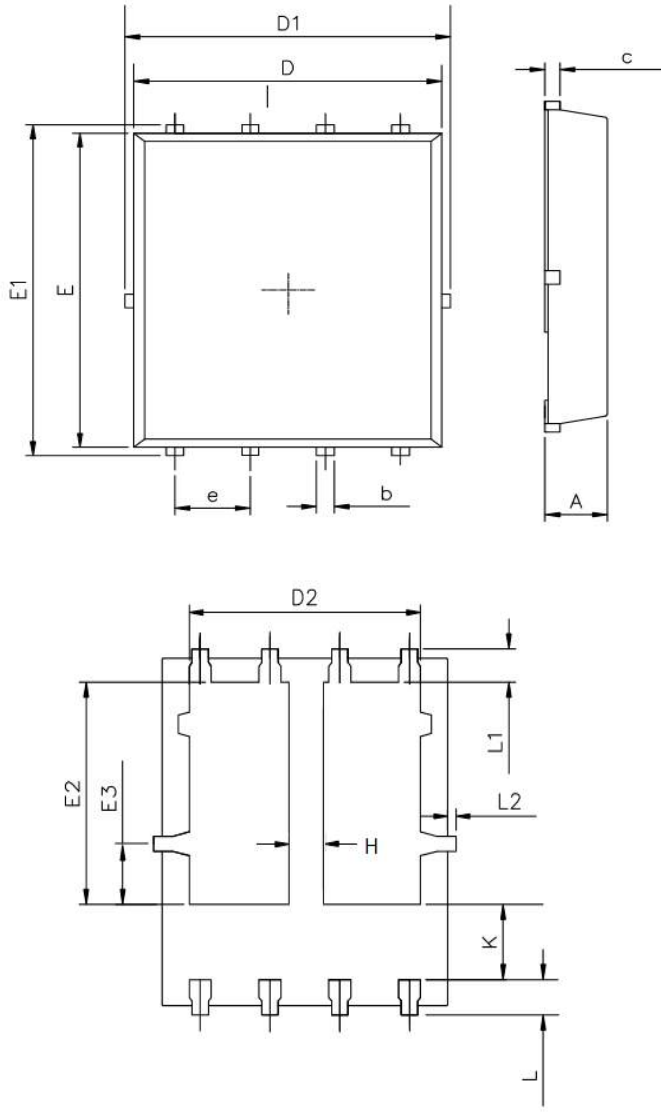


Figure 12: Normalized Maximum Transient Thermal Impedance

■PDFN5X6-8L PACKAGE MECHANICAL DATA



UNIT:mm

	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
H	0.5	0.6	0.7