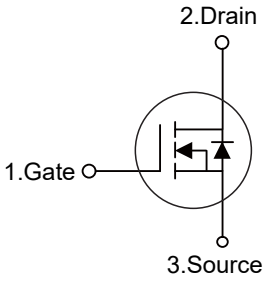
■ PRODUCT CHARACTERISTICS

V_{DSS}	40V
$R_{DS(ON)}$ Typ(@V_{GS}=2.5V)	3.5mΩ
$R_{DS(ON)}$ Typ(@V_{GS}=4.5V)	2.8mΩ
I_D	140A

Symbol



■ FEATURES

Advanced Split Gate Trench Technology

Excellent $R_{DS(ON)}$ and Low Gate Charge

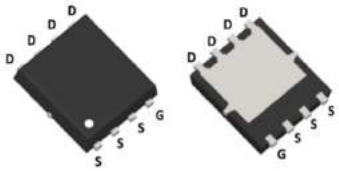
Lead free product is acquired

■ APPLICATION

Load Switch

PWM Application

Power management



PDFN5X6-8L

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT4128G	PDFN5X6-8L	5000 pieces /Reel

■ ABSOLUTE MAXIMUM RATINGS (T_C=25℃ unless otherwise specified)

Parameter			Max	Unit
Drain-Source Voltage		V_{DSS}	40	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current	T_C = 25℃	I_D	140	A
	T_C = 100℃		91	A
Pulsed Drain Current		I_{DM}	560	A
Single Pulsed Avalanche Energy		E_{AS}	196	mJ
Power Dissipation		P_D	83	W
Thermal Resistance, Junction to Case		$R_{\theta JC}$	1.5	℃/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	℃

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	40	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V, V_{GS}=0V,	-	-	1.0	μA
Gate to Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}= ±20V	-	-	±100	nA
On characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.0	-	2.5	V
Static Drain-Source on-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=30A	-	2.8	3.2	mΩ
		V_{GS}=4.5V, I_D=20A	-	3.7	4.5	mΩ
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS}=20V, V_{GS}=0V, f=1.0MHz	-	2625	-	pF
Output Capacitance	C_{oss}		-	1102	-	pF
Reverse Transfer Capacitance	C_{rss}		-	57	-	pF
Total Gate Charge	Q_g	V_{DS}=20V, I_D=75A, V_{GS}=10V	-	42	-	nC
Gate-Source Charge	Q_{gs}		-	10	-	nC
Gate-Drain(“Miller”) Charge	Q_{gd}		-	7	-	nC
Switching characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=20V, I_D=75A, R_G=1.6Ω, V_{GS}=10V	-	9	-	ns
Turn-on Rise Time	t_r		-	103	-	ns
Turn-off Delay Time	$t_{d(off)}$		-	37	-	ns
Turn-off Fall Time	t_f		-	129	-	ns
Drain-source diode characteristics and maximum ratings						
Drain to Source Diode Forward	I_S		-	-	140	A
Drain to Source Diode Forward Current	I_{SM}		-	-	560	A
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=30A	-	-	1.2	V
Body Diode Reverse Recovery Time	t_{rr}	T_J=25℃, I_F=20A,dI/dt=100A/μs	-	38	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	19	-	nC

■ TYPICAL CHARACTERISTICS

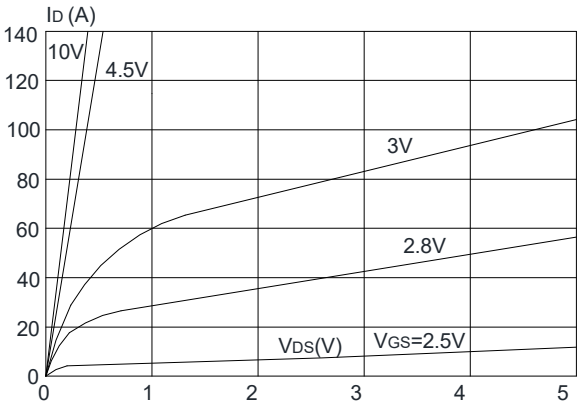


Figure1: Output Characteristics

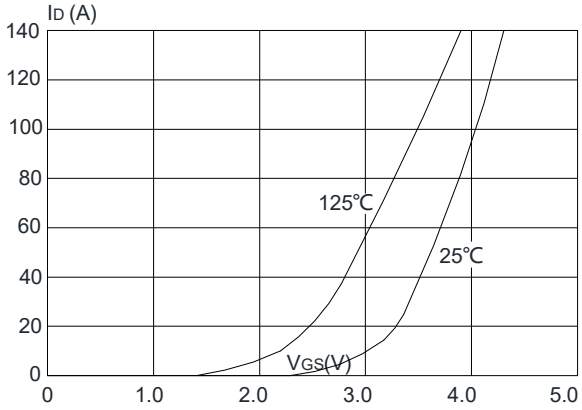


Figure1: Typical Transfer Characteristics

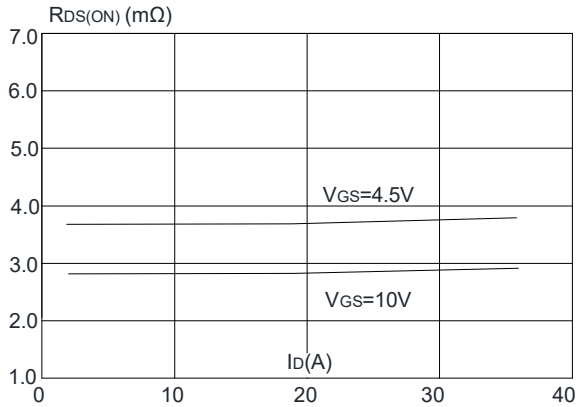


Figure3: On-resistance vs. Drain Current

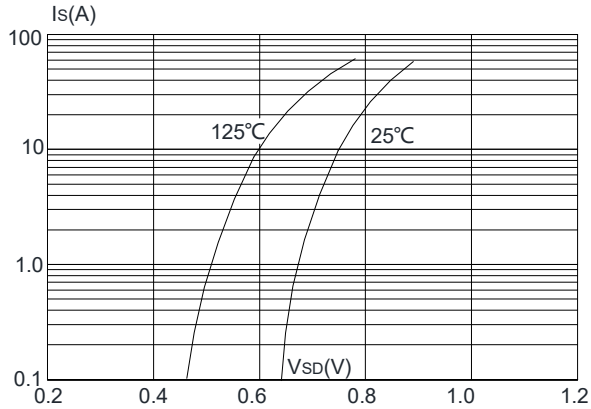


Figure4: Body Diode Characteristics

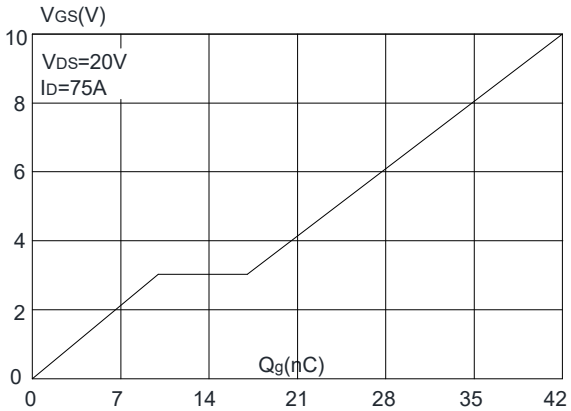


Figure5: Gate Charge Characteristics

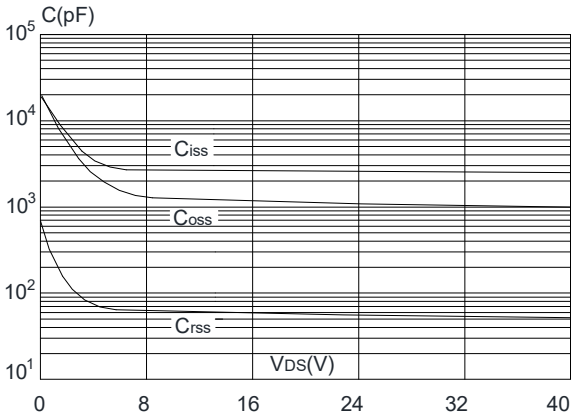


Figure6: Capacitance Characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

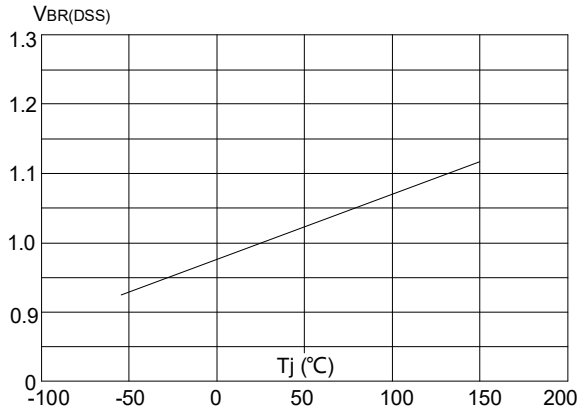


Figure7: Normalized Breakdown Voltage vs. Junction Temperature

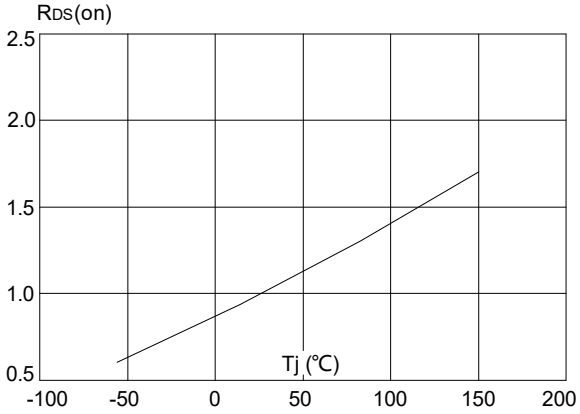


Figure8: Normalized on Resistance vs. Junction Temperature

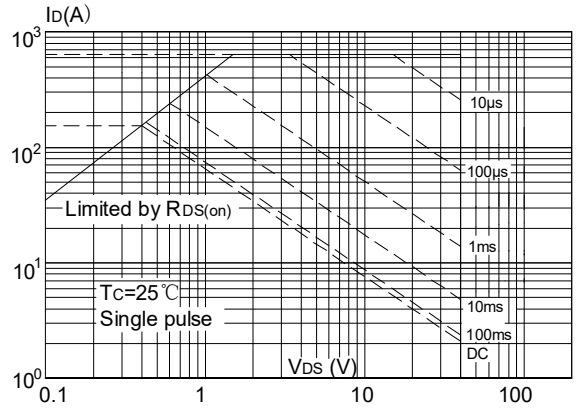


Figure9: Maximum Safe Operating Area

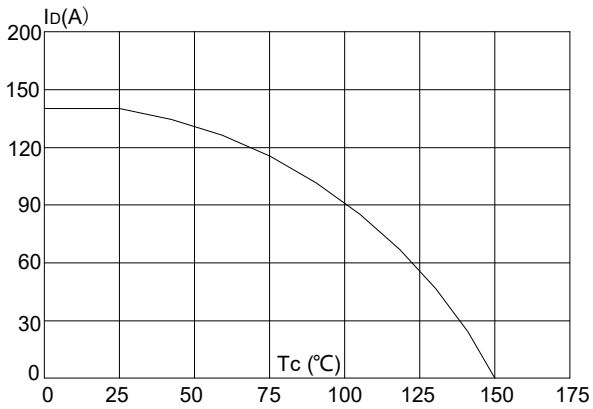


Figure10:Maximum Continuous Drain Current vs. Case Temperature

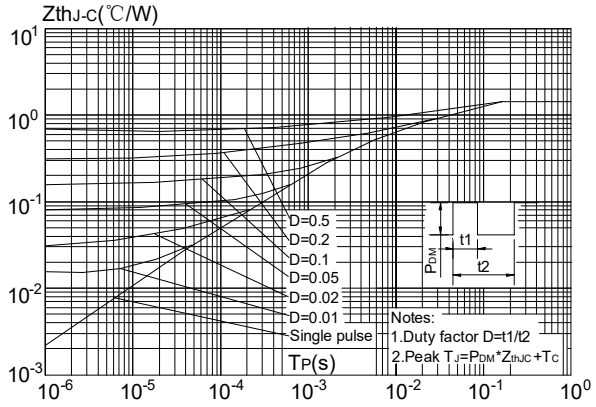
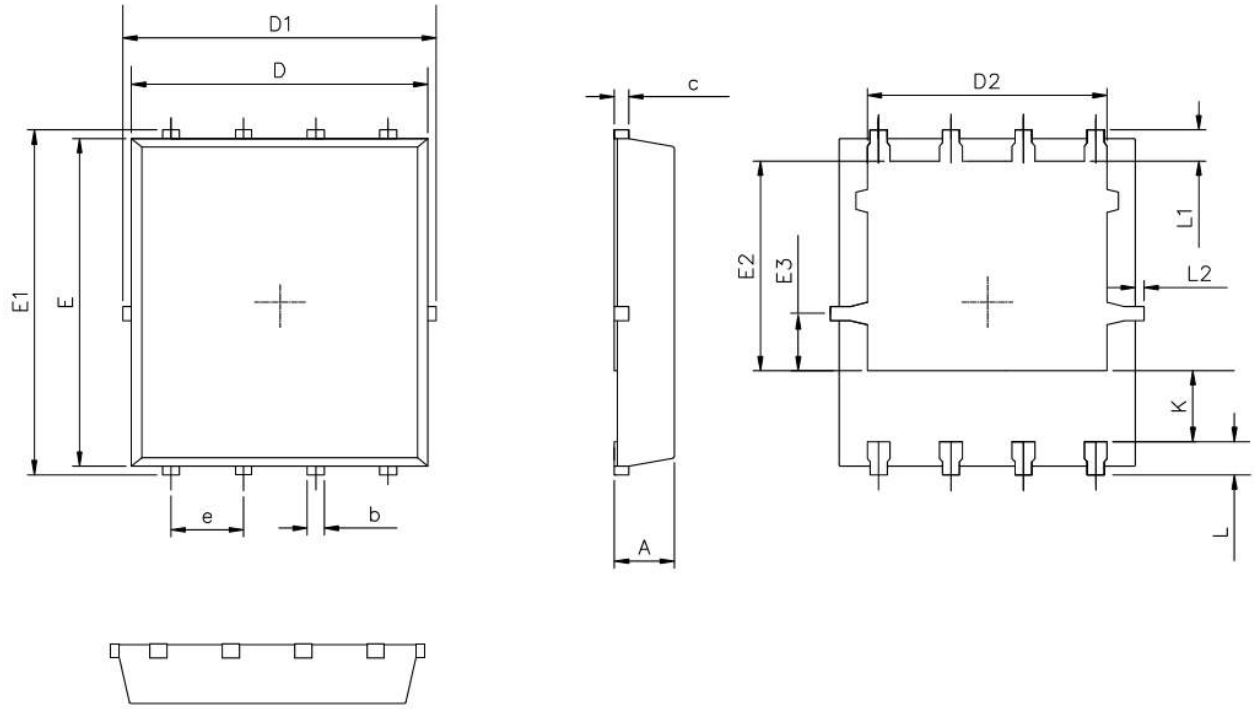


Figure11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

■ 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

RECOMMENDED LAND PATTERN