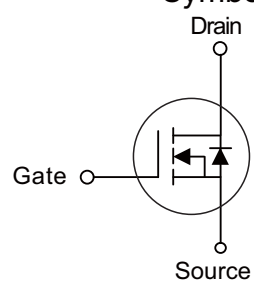
■ PRODUCT CHARACTERISTICS

V_{DSS}	20V
R_{DS} (on)typ(@V_{GS} =2.5 V)	5.5mΩ
R_{DS} (on)typ(@V_{GS} =4.5 V)	4.6mΩ
I_D	60A

Symbol



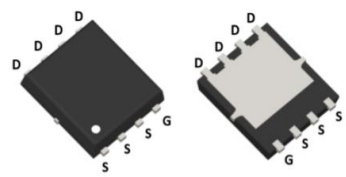
■ APPLICATIONS

* Power management in computing
* Load switching,quick/wireless charging
* Motor driving

■ FEATURES

* Ultra low Rdson
* Low gate charge
* Pb-free lead plating

PDFN3X3-8L



■ ORDER INFORMATION

Order codes		Package	Packing
Halogen- Free	Halogen		
N/A	MOT2155J	PDFN3X3	5000 pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS (T_J=25°C Unless Otherwise Noted)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current	T_C = 25°C	I_D	60	A
	T_C=125°C	I_D	38	A
PulsedDrain Current		I_{DM}	240	A
Avalanche Energy		E_{AS}	45	mJ
Power Dissipation		P_D	32	W
Thermal resistance junction to ambient		θ_{JA}	40	°C/W
Thermal resistance junction to Case		θ_{JC}	3.2	°C/W
Junction & Storage Temperature Range		T_J,T_{STG}	-55-150	°C

■ ELECTRICAL CHARACTERISTICS (T_C=25℃ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = 250μA, V_{GS} = 0V	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V	-	-	1.0	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±12V	-	-	±100	nA
On characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.5	0.8	1.0	V
Static Drain-Source ON-Resistance	$R_{DS(ON)}$	V_{GS} =4.5V, I_D =30A	-	4.6	6	mΩ
		V_{GS} = 2.5V, I_D =20A	-	5.5	7	mΩ
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 10V, f = 1MHz	-	3476	-	pF
Output Capacitance	C_{oss}		-	528	-	pF
Reverse Transfer Capacitance	C_{rss}		-	464	-	pF
Total Gate Charge	Q_g	V_{GS} = 0 to 8V V_{DS} = 10V, I_D = 30A	-	65	-	nC
Gate Source Charge	Q_{gs}		-	8	-	nC
Gate Drain("Miller") Charge	Q_{gd}		-	12	-	nC
Switching characteristics						
Turn-On DelayTime	$t_{d(on)}$	V_{GS} = 10V, V_{DD} = 10V I_D= 30A, R_{GEN} = 3Ω	-	8	-	ns
Turn-On Rise Time	t_r		-	19	-	ns
Turn-Off DelayTime	$t_{d(off)}$		-	73	-	ns
Turn-Off Fall Time	t_f		-	80	-	ns
Drain-source diode characteristics and max ratings						
Maximum Continuous Forward Current	I_S		-	-	60	A
Maximum Pulsed Forward Current	I_{SM}		-	-	240	A
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = 30A	-	-	1.2	V
Body Diode Reverse Recovery Time	trr	I_F = 20A, di/dt = 100A/us	-	16	-	ns
Body Diode Reverse Recovery Charge	Qrr		-	5.6	-	nC

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. E_{AS} condition: Starting T_J=25C, V_{DD}=10V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=22A
3. $R_{\theta JA}$ is measured with the device mounted on a 1inch^2 pad of 2oz copper FR4 PCB
4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

■ TYPICAL CHARACTERISTICS

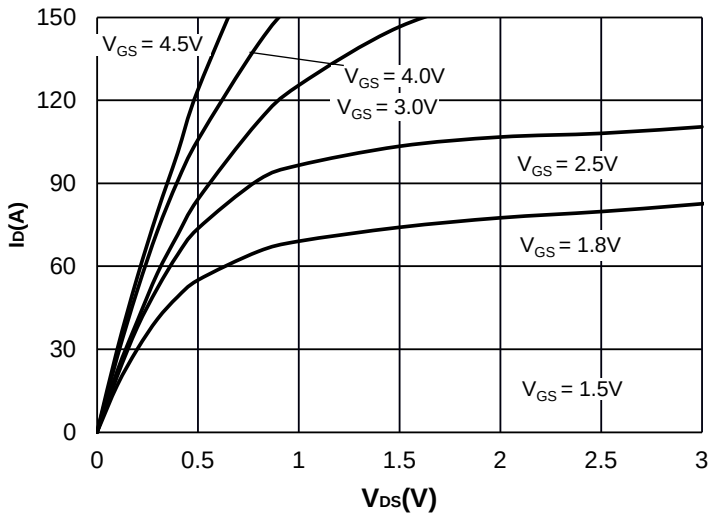


Figure 1: Output Characteristics

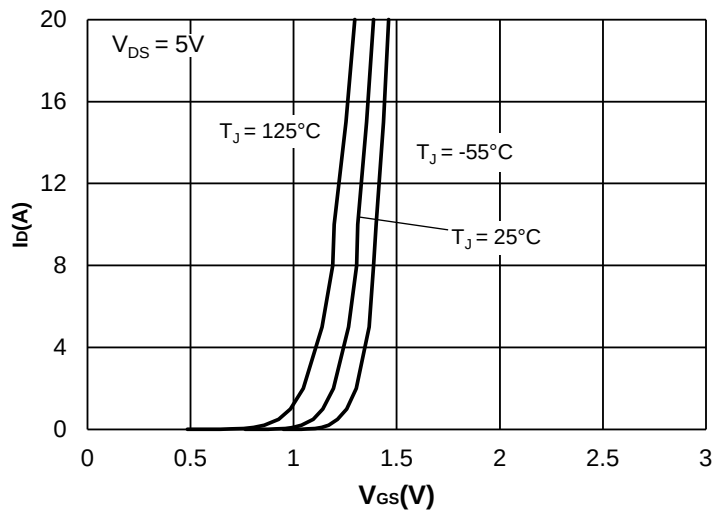


Figure 2: Typical Transfer Characteristics

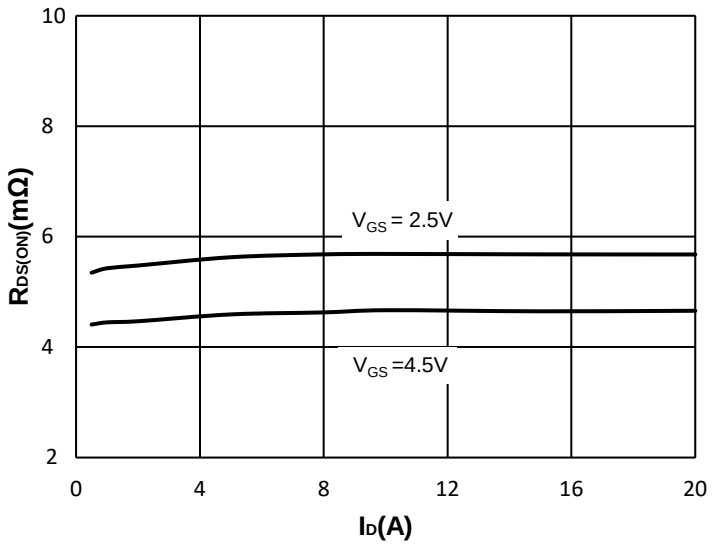


Figure 3: On-resistance vs. Drain Current

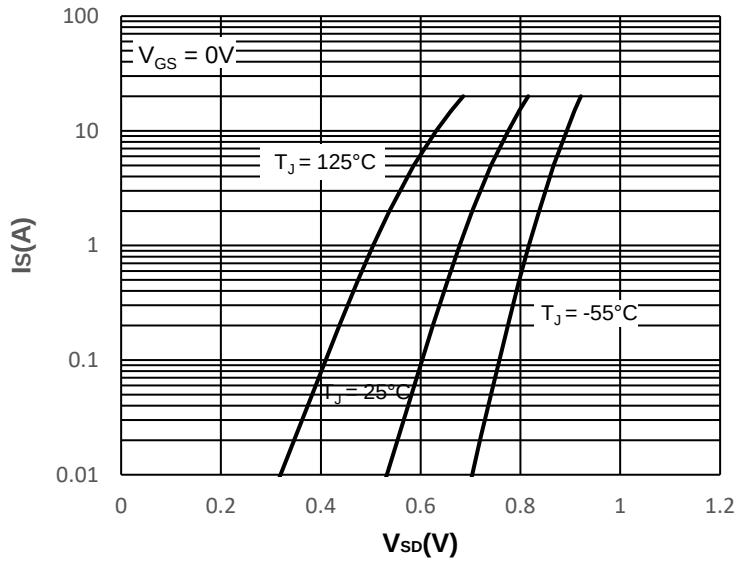


Figure 4: Body Diode Characteristics

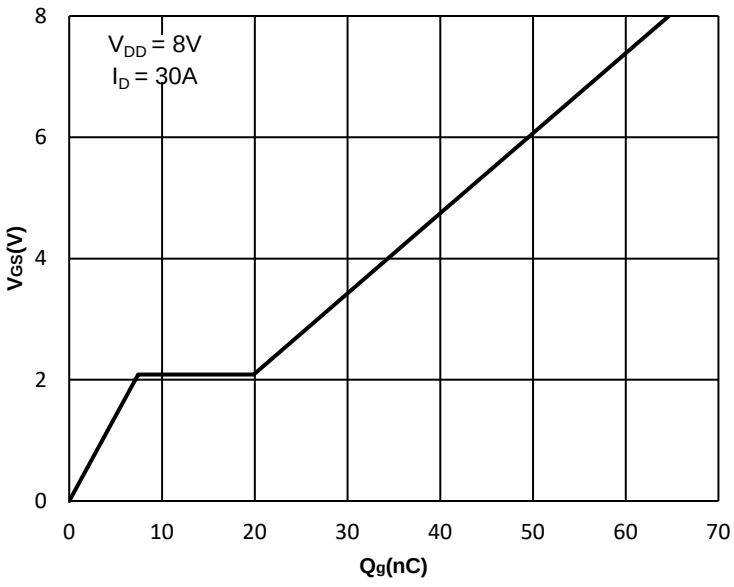


Figure 5: Gate Charge Characteristics

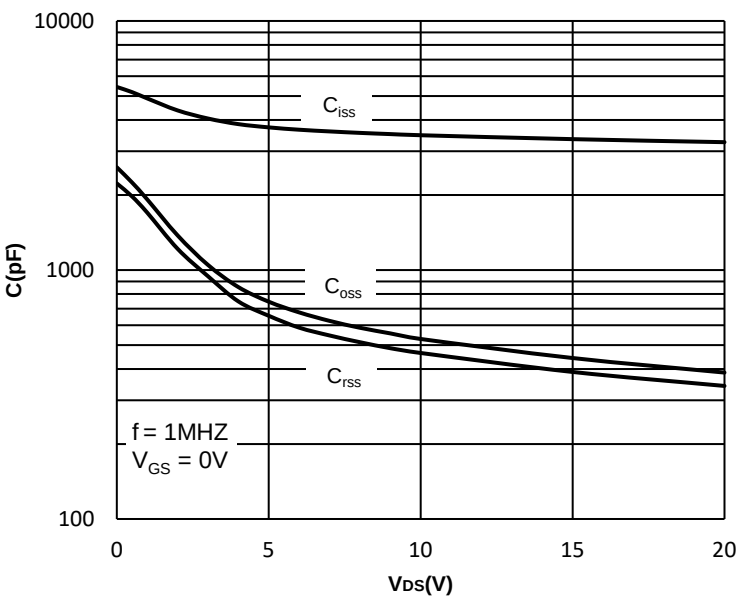


Figure 6: Capacitance Characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

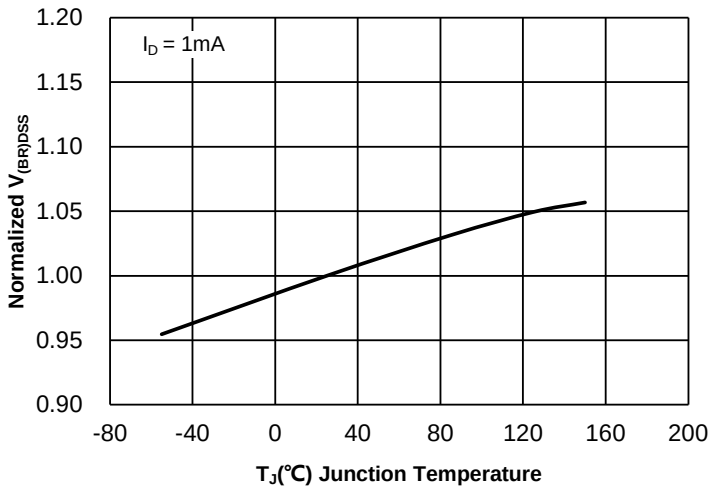


Figure 7: Normalized Breakdown voltage vs. Junction Temperature

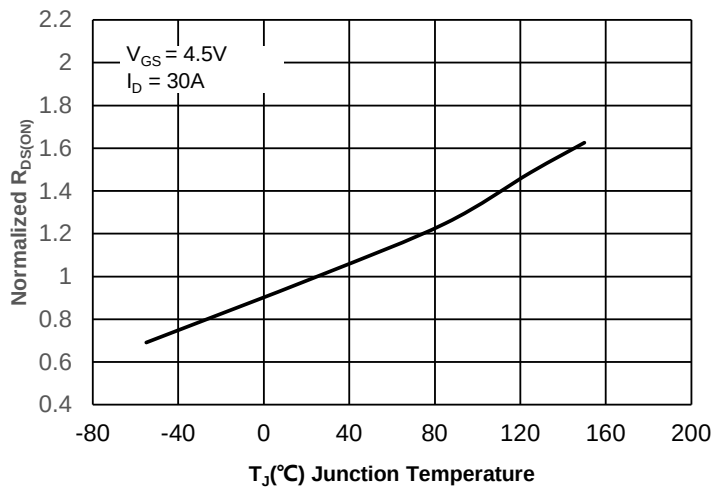


Figure 8: Normalized on Resistance vs. Junction Temperature

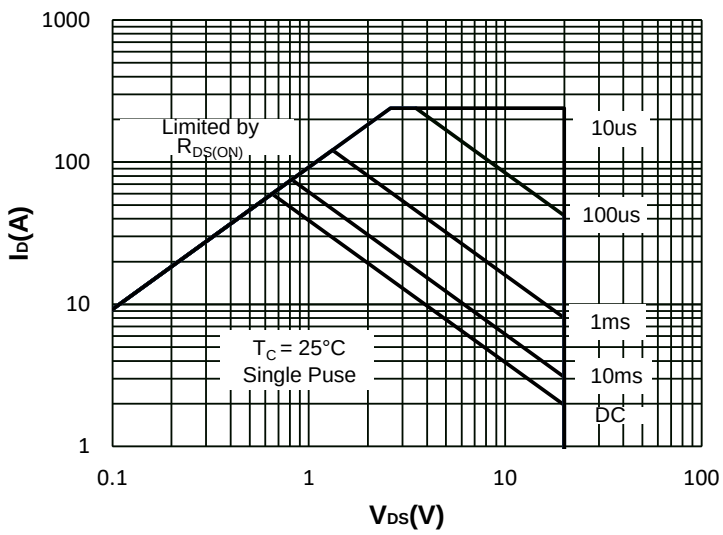


Figure 9: Maximum Safe Operating Area

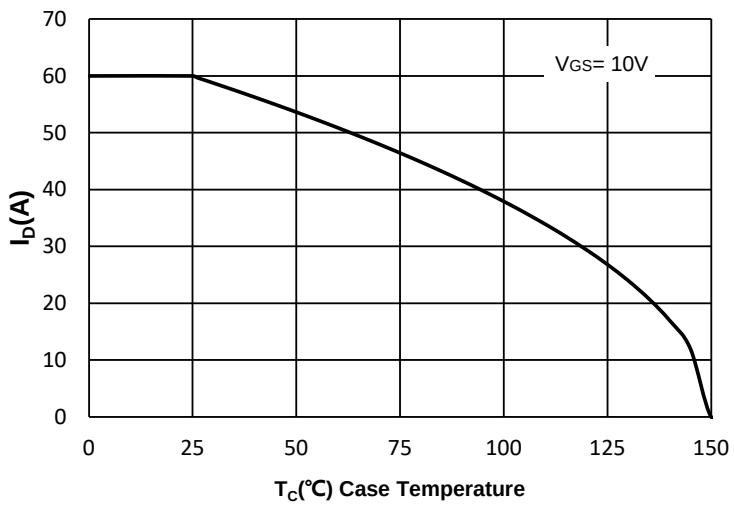


Figure 10: Maximum Continuous Drian Current vs. Case Temperature

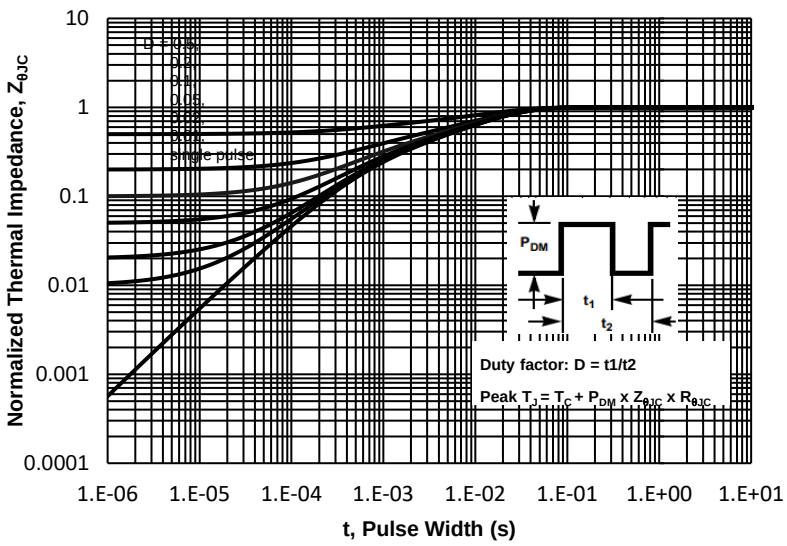


Figure 11: Normalized Maximum Transient Thermal Impedance

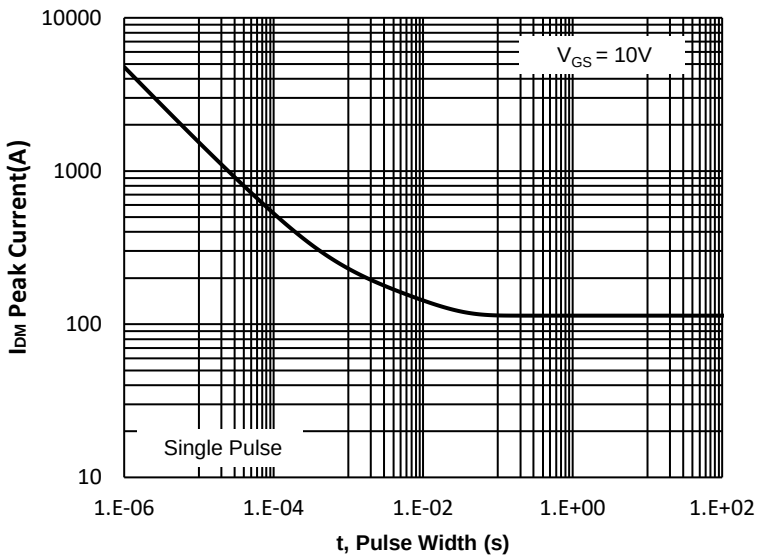
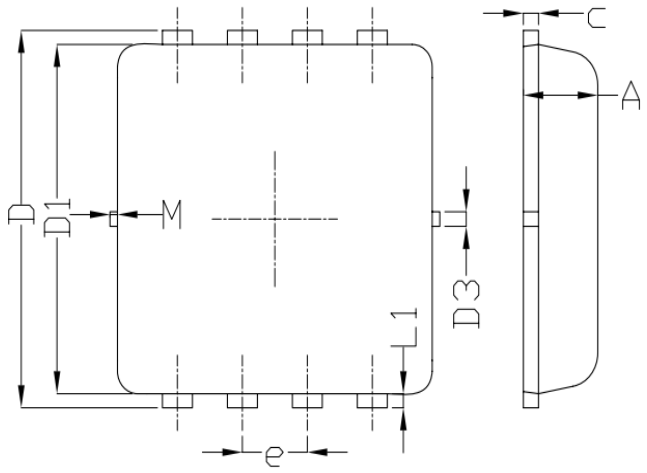
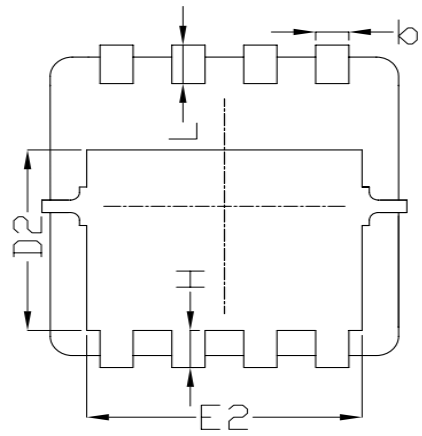
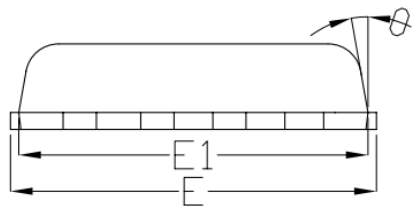


Figure 12: Peak Current Capacity

■ PDFN3X3-8L Package Mechanical Data

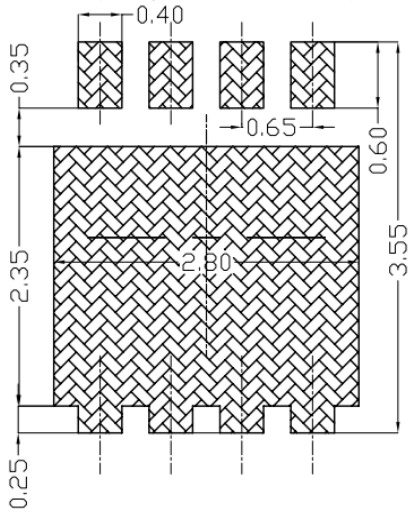






SYMBOL	DIMENSIONAL REQMTS		
	MIN	NOM	MAX
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	---	0.13	---
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	---	0.13	---
θ	---	10°	12°
M	*	*	0.15
* Not specified			

Land Pattern
(Only for Reference)



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