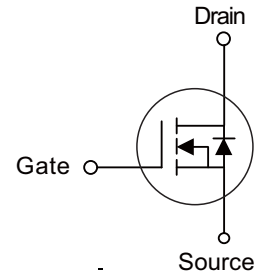


■ PRODUCT CHARACTERISTICS

Symbol	Value	Unit
$V_{DSS}$	20	V
$R_{DS(ON)-Typ@V_{GS}=4.5V}$	2.5	m $\Omega$
$R_{DS(ON)-Typ@V_{GS}=2.5V}$	3.2	m $\Omega$
$I_D$	75	A

Symbol

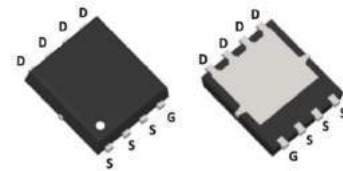


■ APPLICATIONS

- Load Switch
- PWM Application
- Power Management

■ FEATURES

- Advanced Trench Technology
- Excellent  $R_{DS(ON)}$  and Low Gate Charge
- Lead Free



PDFN5X6-8L

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT2135	PDFN5X6-8L	5000Pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS (@  $T_C = 25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Value	Unit	
Drain-to-Source Voltage	$V_{DS}$	20	V	
Gate-to-Source Voltage	$V_{GS}$	$\pm 12$	V	
Continuous Drain Current	$T_C = 25^\circ\text{C}$	$I_D$	75	A
	$T_C = 100^\circ\text{C}$	$I_D$	48	A
Pulsed Drain Current <sup>(1)</sup>	$I_{DM}$	300	A	
Single Pulsed Avalanche Energy <sup>(2)</sup>	$E_{AS}$	156	mJ	
Power Dissipation	$T_C = 25^\circ\text{C}$	$P_D$	40	W
Thermal Resistance, Junction to Ambient <sup>(3)</sup>	$R_{\theta JA}$	33	$^\circ\text{C/W}$	
Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.1	$^\circ\text{C/W}$	
Junction & Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^\circ\text{C}$	

**■ ELECTRICAL CHARACTERISTICS** ( $T_C=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 250\mu\text{A}, V_{GS} = 0\text{V}$	20	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 20\text{V}, V_{GS} = 0\text{V}$	-	-	1.0	$\mu\text{A}$
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS} = 0\text{V}, V_{GS} = \pm 12\text{V}$	-	-	$\pm 100$	nA
On characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	0.5	0.8	1.0	V
Static Drain-Source ON-Resistance <sup>(4)</sup>	$R_{DS(ON)}$	$V_{GS} = 4.5\text{V}, I_D = 30\text{A}$	-	2.5	3.5	$\text{m}\Omega$
		$V_{GS} = 2.5\text{V}, I_D = 20\text{A}$	-	3.2	4.5	$\text{m}\Omega$
Dynamic characteristics						
Input Capacitance	$C_{iss}$	$V_{GS} = 0\text{V}, V_{DS} = 10\text{V}, f = 1\text{MHz}$	-	3476	-	pF
Output Capacitance	$C_{oss}$		-	528	-	pF
Reverse Transfer Capacitance	$C_{rss}$		-	464	-	pF
Total Gate Charge	$Q_g$	$V_{GS} = 0 \text{ to } 8\text{V}$ $V_{DS} = 10\text{V}, I_D = 30\text{A}$	-	65	-	nC
Gate Source Charge	$Q_{gs}$		-	8	-	nC
Gate Drain("Miller") Charge	$Q_{gd}$		-	12	-	nC
Switching characteristics						
Turn-On DelayTime	$t_{d(on)}$	$V_{GS} = 10\text{V}, V_{DD} = 10\text{V}$ $I_D = 30\text{A}, R_{GEN} = 3\Omega$	-	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						
Drain to Source Diode Forward Current	$I_S$		-	-	75	A
Drain to Source Diode Forward Current	$I_{SM}$		-	-	300	A
Drain to Source Diode Forward Voltage	$V_{SD}$	$V_{GS} = 0\text{V}, I_S = 30\text{A}$	-	-	1.2	V
Body Diode Reverse Recovery Time	$t_{rr}$	$I_F = 20\text{A}, di/dt = 100\text{A/us}$	-	16	-	ns
Body Diode Reverse Recovery Charge	$Q_{rr}$		-	5.6	-	nC

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

■ TYPICAL CHARACTERISTICS

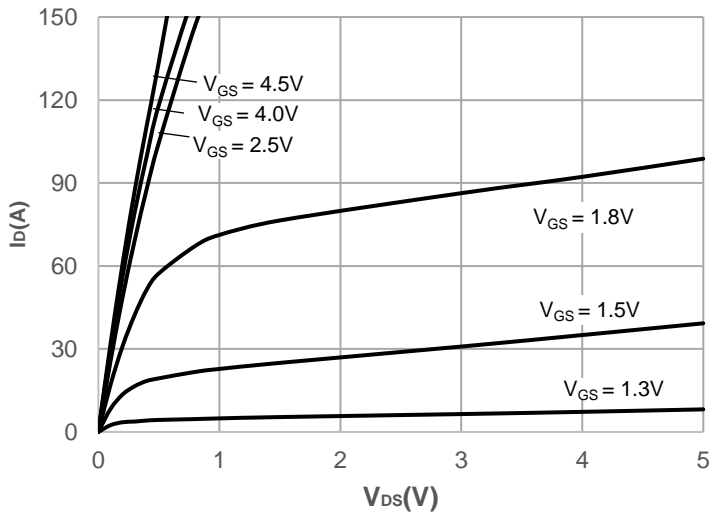


Figure 1: Output Characteristics

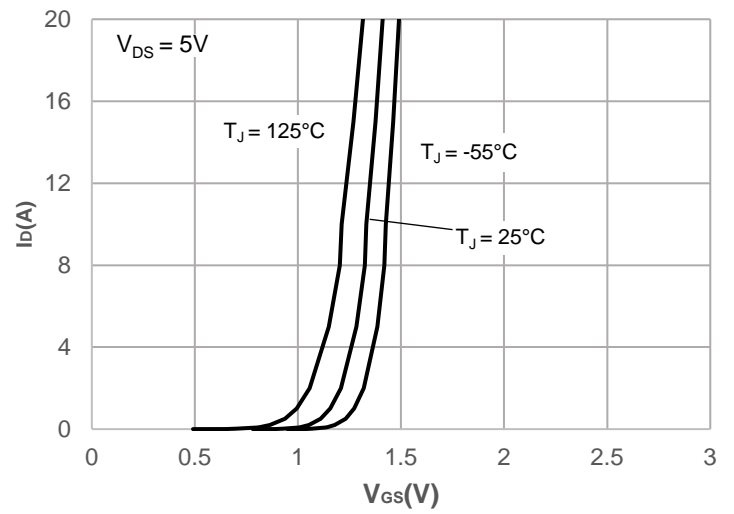


Figure 2: Typical Transfer Characteristics

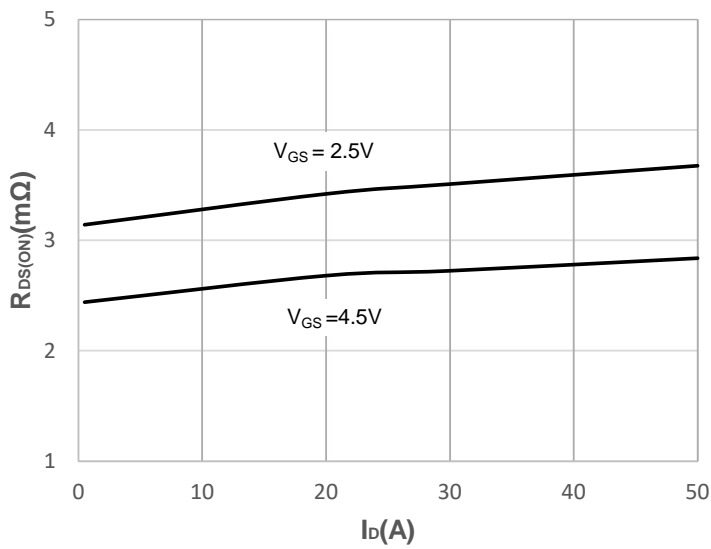


Figure 3: On-resistance vs. Drain Current

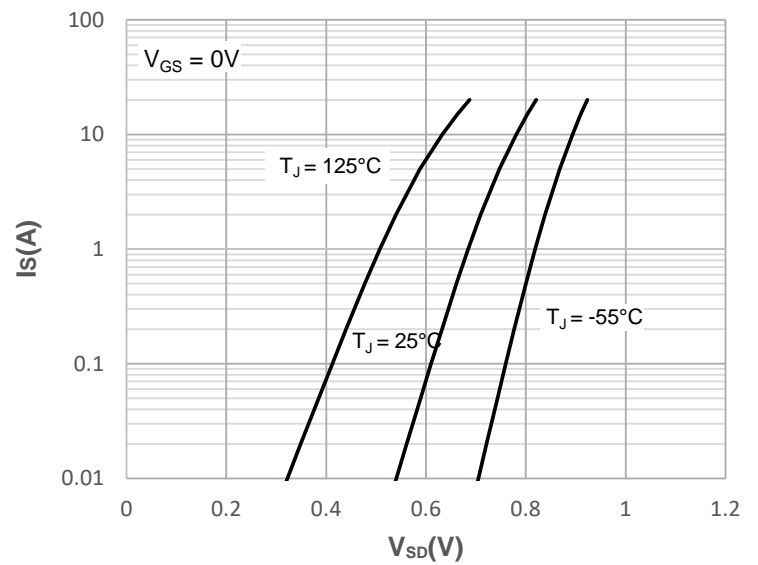


Figure 4: Body Diode Characteristics

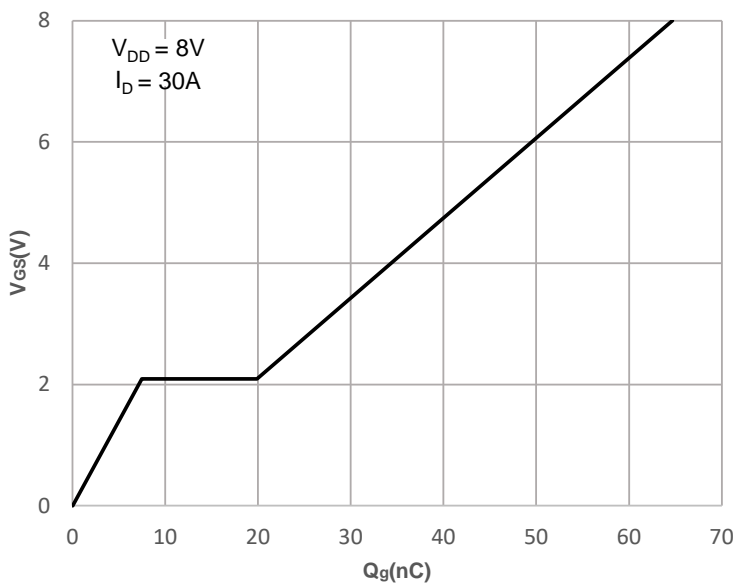


Figure 5: Gate Charge Characteristics

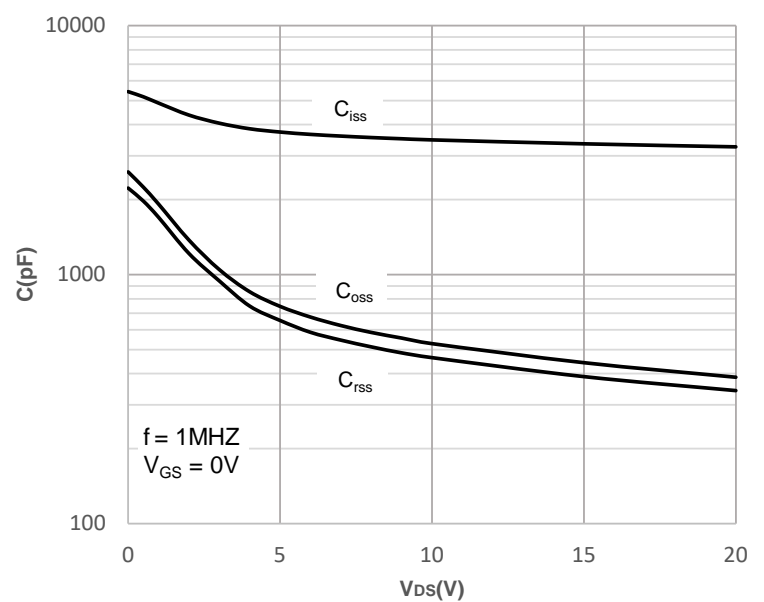


Figure 6: Capacitance Characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

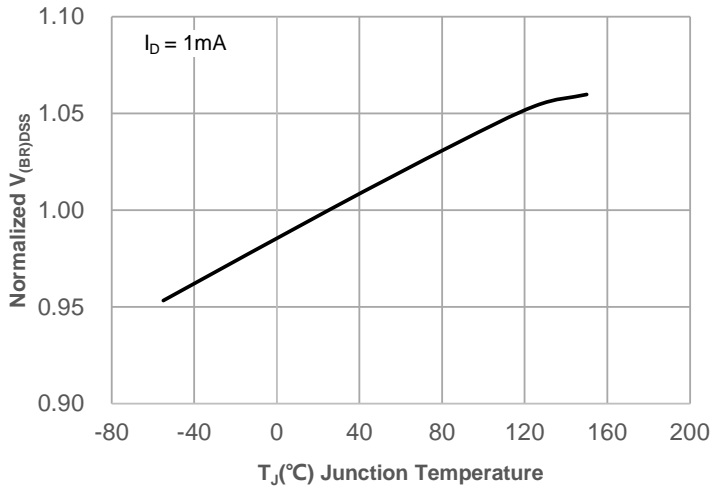


Figure 7: Normalized Breakdown voltage vs. Junction Temperature

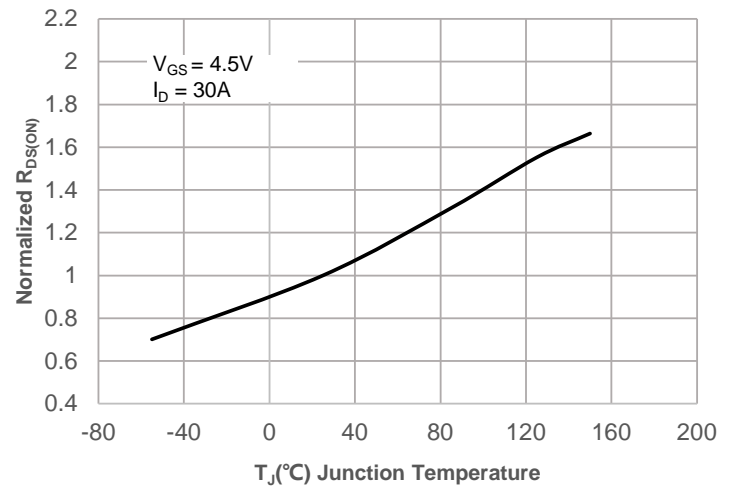


Figure 8: Normalized on Resistance vs. Junction Temperature

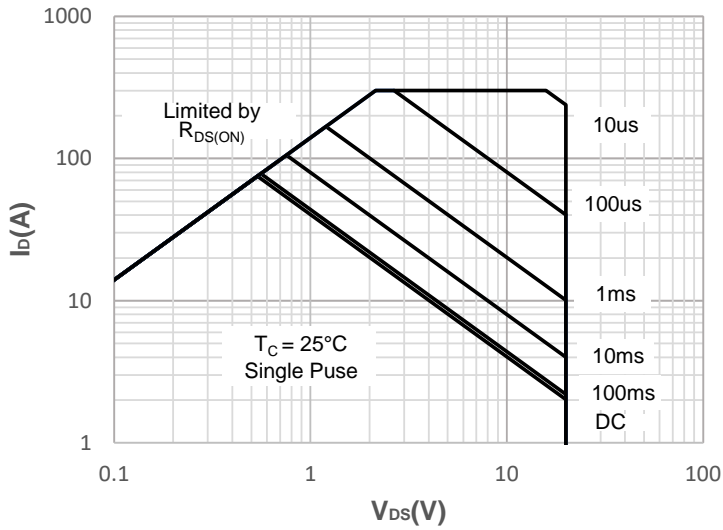


Figure 9: Maximum Safe Operating Area

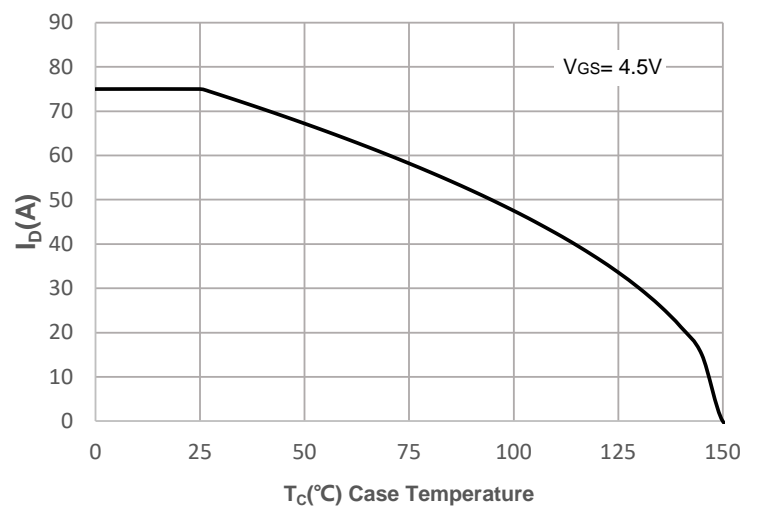


Figure 10: Maximum Continuous Drian Current vs. Case Temperature

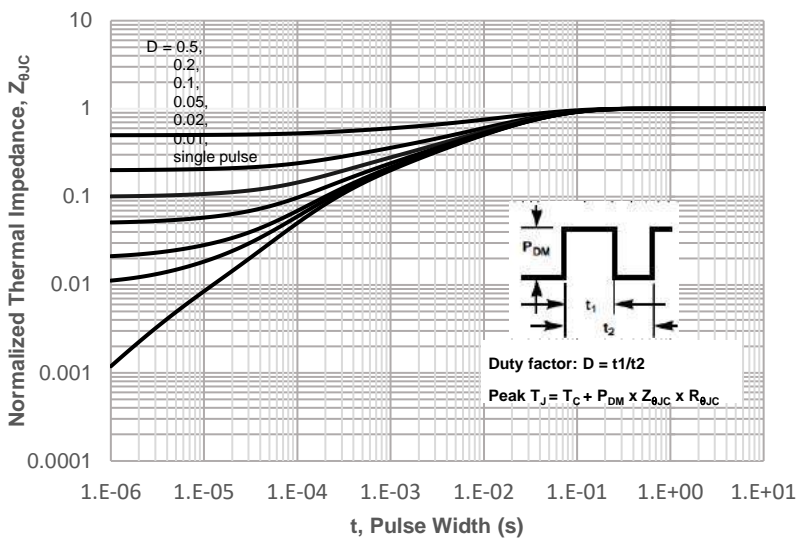


Figure 11: Normalized Maximum Transient Thermal Impedance

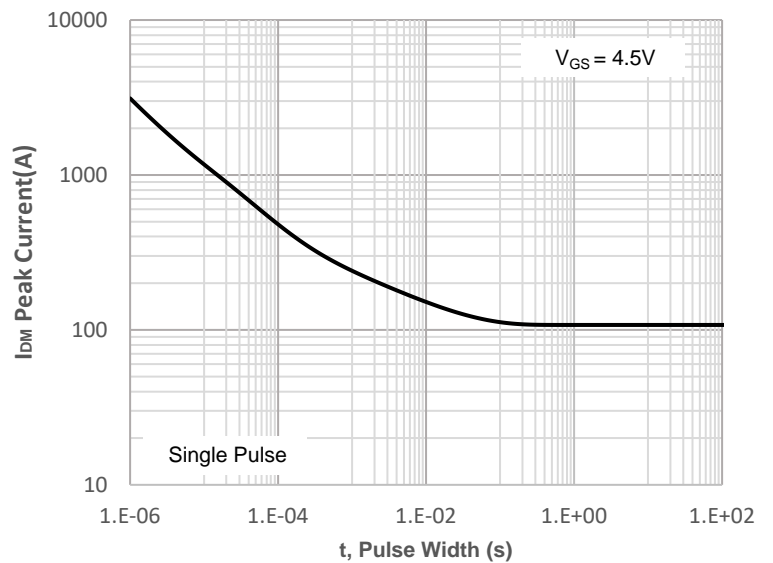
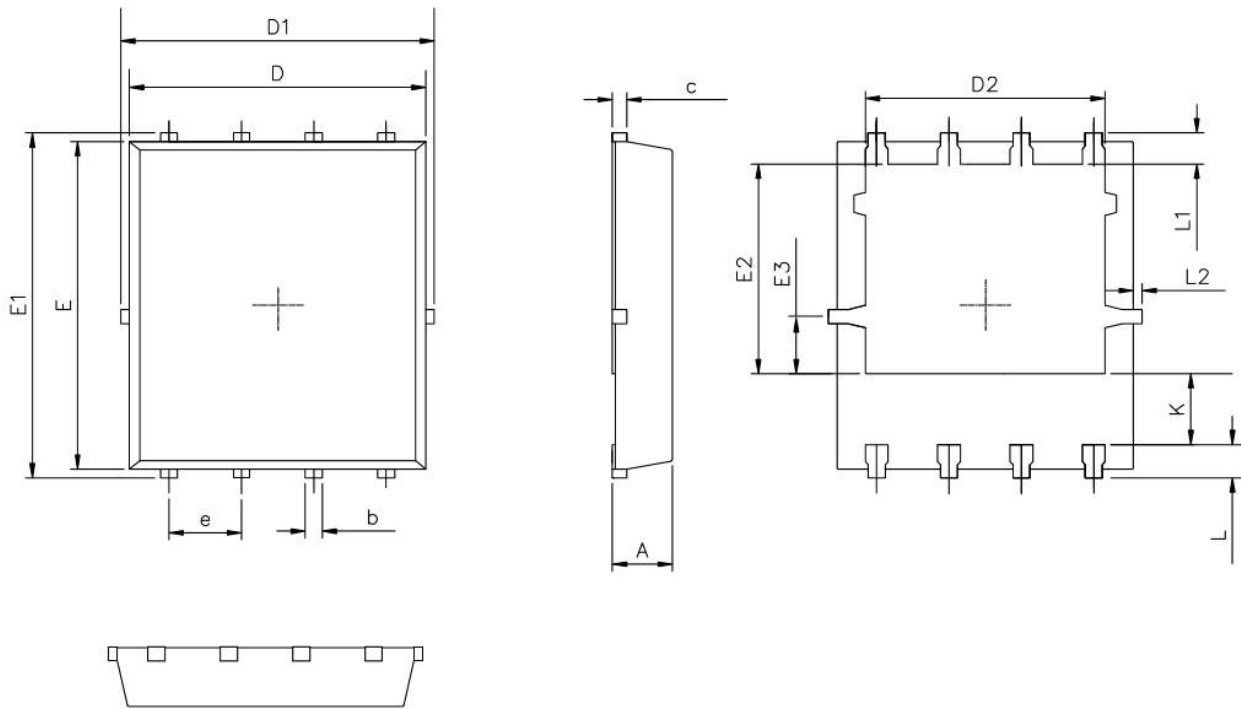
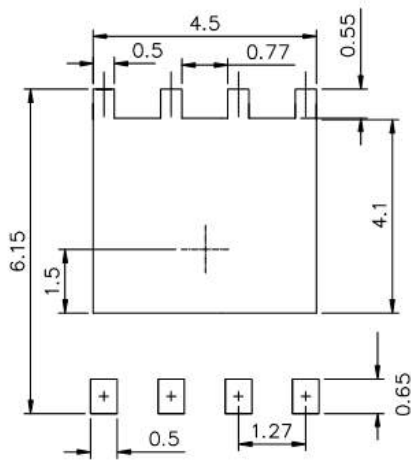


Figure 12: Peak Current Capacity

■ PDFN5X6-8L Package Mechanical Data



RECOMMENDED LAND PATTERN



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

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [MOSFET](#) category:*

*Click to view products by [MOT](#) manufacturer:*

Other Similar products are found below :

[IRFD120](#) [JANTX2N5237](#) [BUK455-60A/B](#) [MIC4420CM-TR](#) [VN1206L](#) [NDP4060](#) [SI4482DY](#) [IPS70R2K0CEAKMA1](#) [SQD23N06-31L-GE3](#)  
[TK16J60W,S1VQ\(O](#) [2SK2614\(TE16L1,Q\)](#) [DMN1017UCP3-7](#) [DMN1053UCP4-7](#) [SQJ469EP-T1-GE3](#) [NTE2384](#) [DMC2700UDMQ-7](#)  
[DMN2080UCB4-7](#) [DMN61D9UWQ-13](#) [US6M2GTR](#) [DMN31D5UDJ-7](#) [DMP22D4UFO-7B](#) [DMN1006UCA6-7](#) [DMN16M9UCA6-7](#)  
[STF5N65M6](#) [IRF40H233XTMA1](#) [STU5N65M6](#) [DMN6022SSD-13](#) [DMN13M9UCA6-7](#) [DMTH10H4M6SPS-13](#) [DMN2990UFB-7B](#)  
[IPB80P04P405ATMA2](#) [2N7002W-G](#) [MCAC30N06Y-TP](#) [MCQ7328-TP](#) [BXP7N65D](#) [BXP4N65F](#) [AOL1454G](#) [WMJ80N60C4](#) [BXP2N20L](#)  
[BXP2N65D](#) [BXT1150N10J](#) [BXT1700P06M](#) [TSM60NB380CP](#) [ROG](#) [RQ7L055BGTCR](#) [DMNH15H110SK3-13](#) [SLF10N65ABV2](#)  
[BSO203SP](#) [BSO211P](#) [IPA60R230P6](#) [IPA60R460CE](#)