

■ PRODUCT CHARACTERISTICS

VDSS	60V
$R_{DS(on)typ}@V_{GS}=10V$	15mΩ
$R_{DS(on)typ}@V_{GS}=4.5V$	18mΩ
ID	50A

■ APPLICATIONS

- Portable Equipment and Battery Powered systems.
- Power Management in Notebook Computer

■ FEATURES

- Lower  $R_{DS(ON)}$  to Minimize Conduction Losses
- Reliable and Rugged
- ROHS Compliant & Halogen-Free
- 100% UIS and Rg Tested

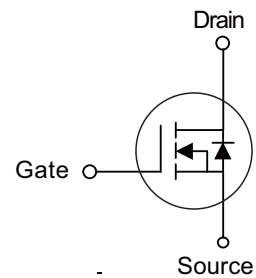
■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT6515J	PDFN3X3	5000 pieces /Reel

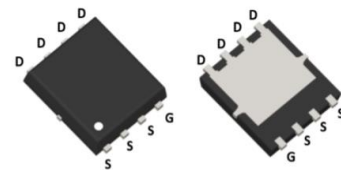
■ ABSOLUTE MAXIMUM RATINGS ( $T_J=25^{\circ}C$  Unless Otherwise Noted)

PARAMETER	SYMBOL	RATINGS	UNIT	
Drain-Source Voltage	$V_{DSS}$	60	V	
Gate-Source Voltage	$V_{GSS}$	±20	V	
Drain Current	Continuous	$I_D$	50	A
	Pulsed	$I_{DM}$	100	A
Avalanche Energy	Single Pulsed	$E_{AS}$	66	mJ
Peak Diode Recovery dv/dt	dv/dt	6.4	V/ns	
Power Dissipation	$P_D$	28	W	
Junction to Ambient	$\theta_{JA}$	65	$^{\circ}C/W$	
Junction to Case	$\theta_{JC}$	4.46	$^{\circ}C/W$	
Junction Temperature	$T_J$	+150	$^{\circ}C$	
Storage Temperature Range	$T_{STG}$	-55 ~ +150	$^{\circ}C$	

Symbol



PDFN3X3-8L



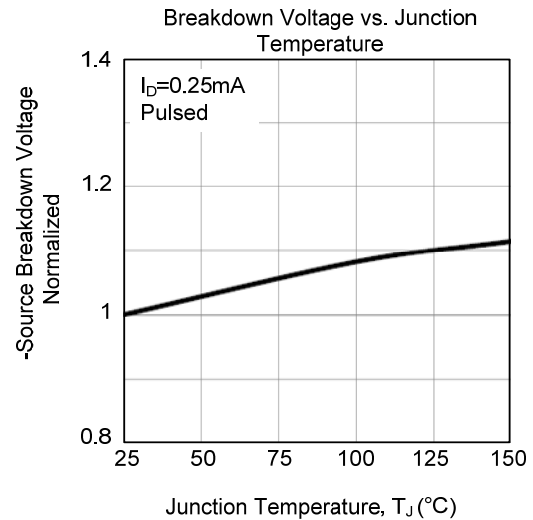
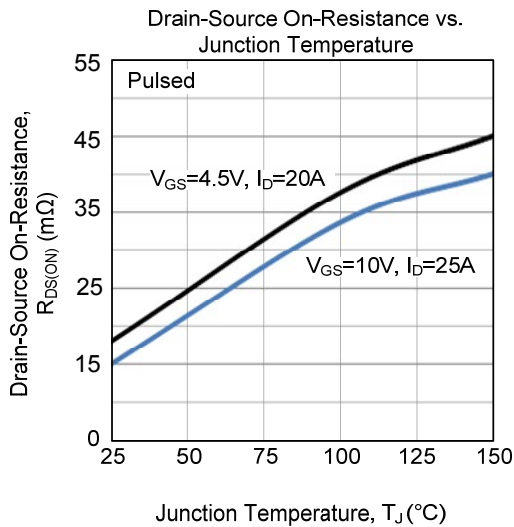
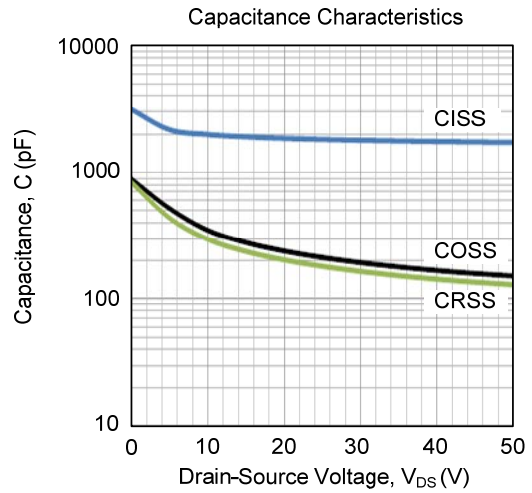
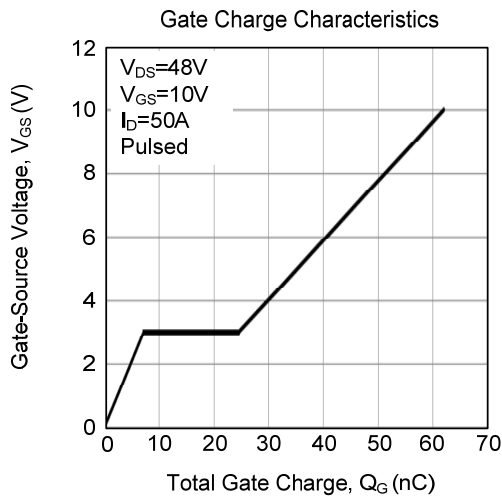
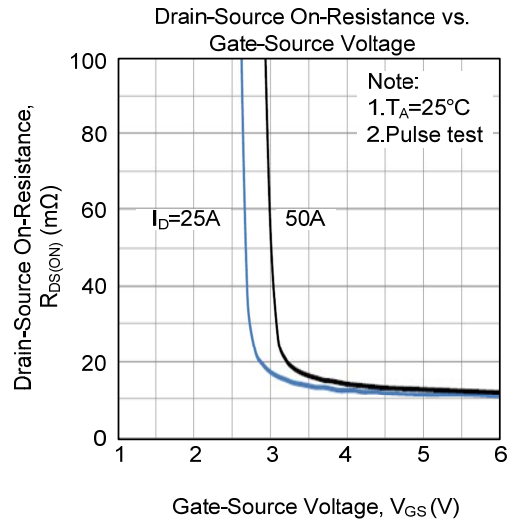
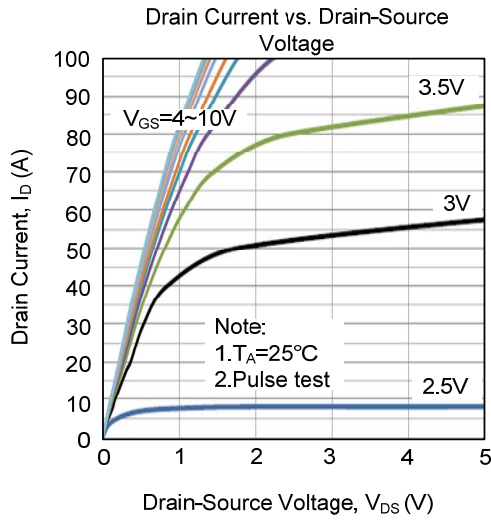
**■ ELECTRICAL CHARACTERISTICS (T<sub>c</sub>=25°C unless otherwise specified)**

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Off characteristics						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	I <sub>D</sub> =250μA, V <sub>GS</sub> =0V	60	-	-	V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V	-	-	1.0	μA
Gate-Source Leakage Current	Forward	I <sub>GSS</sub>	-	-	+100	nA
	Reverse				-100	nA
On characteristics						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.0	-	3.0	V
Static Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =25A	-	15	18	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =20A	-	18	22	mΩ
Dynamic characteristics						
Input Capacitance	C <sub>ISS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =25V, f=1.0MHz	-	1820	-	pF
Output Capacitance	C <sub>OSS</sub>		-	220	-	pF
Reverse Transfer Capacitance	C <sub>RSS</sub>		-	180	-	pF
Switching characteristics						
Total Gate Charge (Note 1)	Q <sub>G</sub>	V <sub>DS</sub> =48V, V <sub>GS</sub> =10V, I <sub>D</sub> =50A, I <sub>G</sub> =100μA (Note 1, 2)	-	62	-	nC
Gate to Source Charge	Q <sub>GS</sub>		-	7	-	nC
Gate to Drain Charge	Q <sub>GD</sub>		-	18	-	nC
Turn-on Delay Time (Note 1)	t <sub>D(ON)</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =50A, R <sub>G</sub> =3Ω (Note 1, 2)	-	8	-	ns
Rise Time	t <sub>R</sub>		-	18	-	ns
Turn-off Delay Time	t <sub>D(OFF)</sub>		-	44	-	ns
Fall-Time	t <sub>F</sub>		-	22	-	ns
Source-drain diode ratings characteristics						
Maximum Body-Diode Continuous Current	I <sub>S</sub>		-	-	50	A
Maximum Body-Diode Pulsed Current	I <sub>SM</sub>		-	-	100	A
Drain-Source Diode Forward Voltage (Note 1)	V <sub>SD</sub>	I <sub>S</sub> =50A, V <sub>GS</sub> =0V	-	-	1.3	V
Reverse Recovery Time (Note 1)	t <sub>rr</sub>	I <sub>S</sub> =30A, V <sub>GS</sub> =0V,	-	102	-	nS
Reverse Recovery Charge	Q <sub>rr</sub>	di <sub>F</sub> /dt =100A/μs	-	140	-	nC

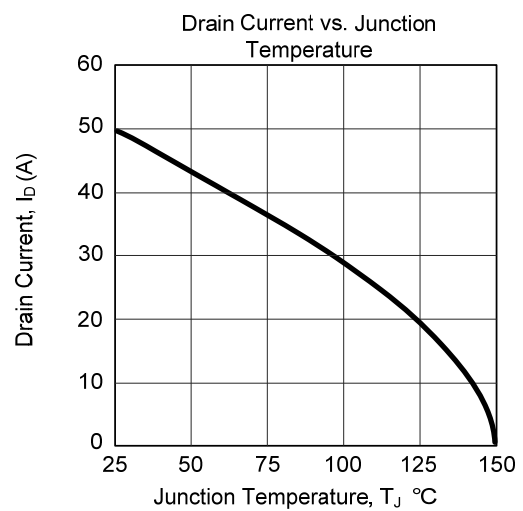
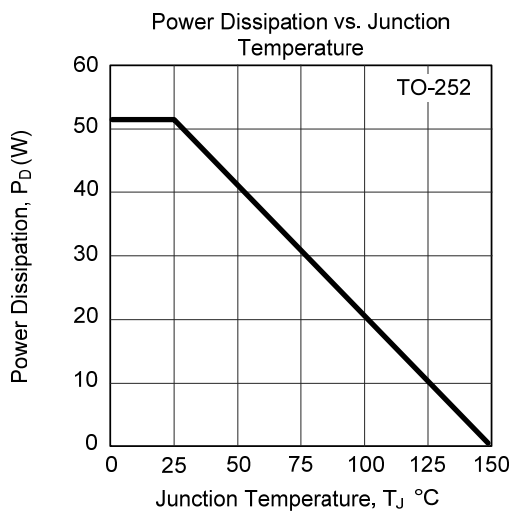
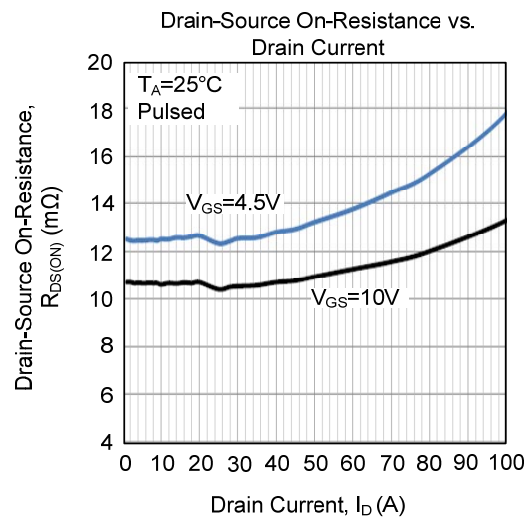
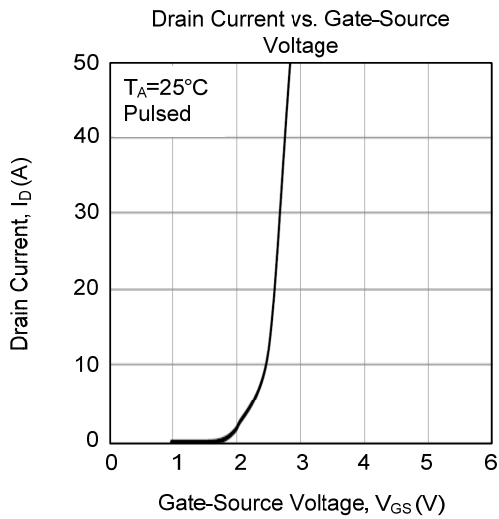
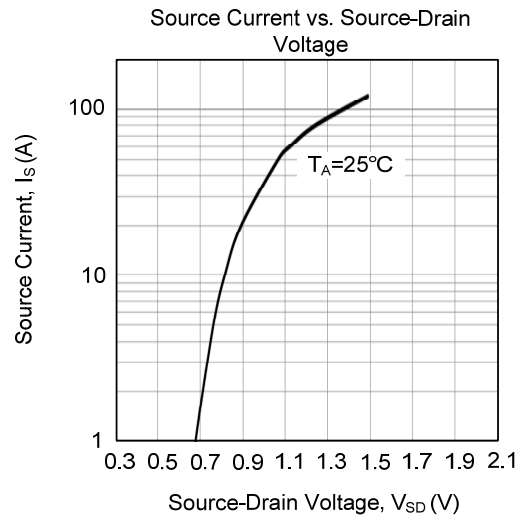
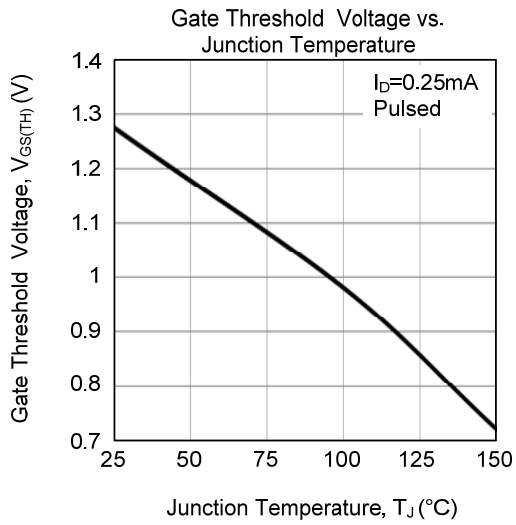
Notes: 1. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%.

2. Essentially independent of operating ambient temperature.

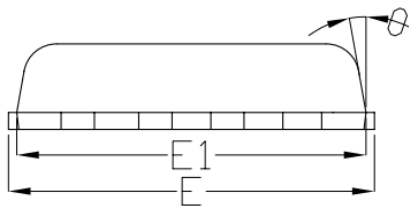
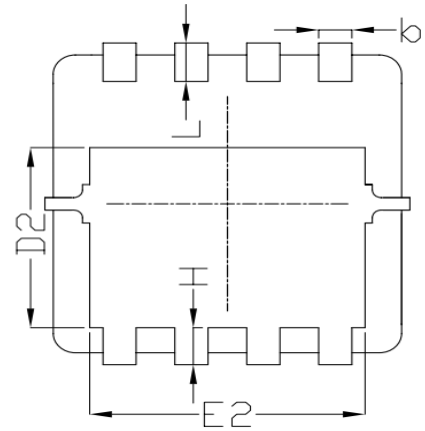
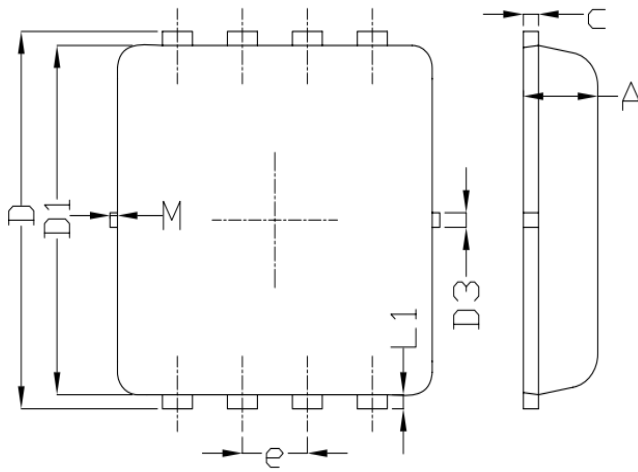
■ TYPICAL CHARACTERISTICS



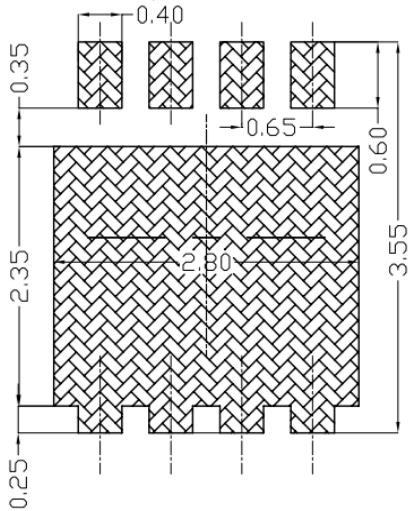
■ TYPICAL CHARACTERISTICS(Cont.)



■ PDFN3X3-8L Package Mechanical Data



Land Pattern  
(Only for Reference)



SYMBOL	DIMENSIONAL REOMTS		
	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			

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