

■ PRODUCT CHARACTERISTICS

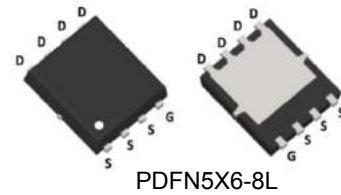
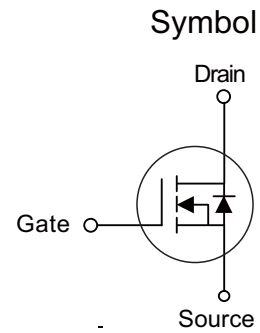
V <sub>DSS</sub>	60V
R <sub>DS(on)typ</sub> (@V <sub>GS</sub> =10 V)	15mΩ
R <sub>DS(on)typ</sub> (@V <sub>GS</sub> =4.5 V)	18mΩ
I <sub>D</sub>	50A

■ APPLICATIONS

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

■ FEATURES

- Lower R<sub>DS(ON)</sub> 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	MOT6515G	PDFN5X6-8L	5000 pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS (T<sub>J</sub>=25°C Unless Otherwise Noted)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V <sub>DSS</sub>	60	V
Gate-Source Voltage		V <sub>GSS</sub>	±20	V
Drain Current	Continuous	I <sub>D</sub>	50	A
	Pulsed	I <sub>DM</sub>	100	A
Avalanche Energy	Single Pulsed	E <sub>AS</sub>	66	mJ
Peak Diode Recovery dv/dt		dv/dt	6.4	V/ns
Power Dissipation		P <sub>D</sub>	28	W
Junction to Case		θ <sub>JC</sub>	4.46	°C/W
Junction Temperature		T <sub>J</sub>	+150	°C
Storage Temperature Range		T <sub>STG</sub>	-55 ~ +150	°C

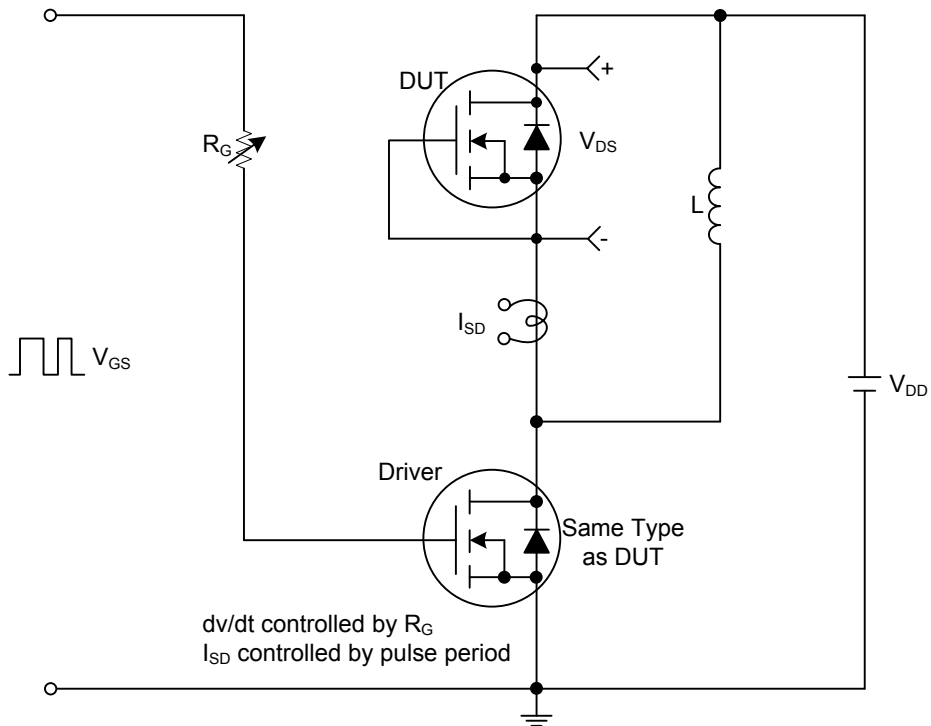
■ ELECTRICAL CHARACTERISTICS (T<sub>c</sub>=25°C unless otherwise specified)

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, dI <sub>F</sub> /dt =100A/μs	-	102	-	nS
Reverse Recovery Charge	Q <sub>rr</sub>		-	140	-	nC

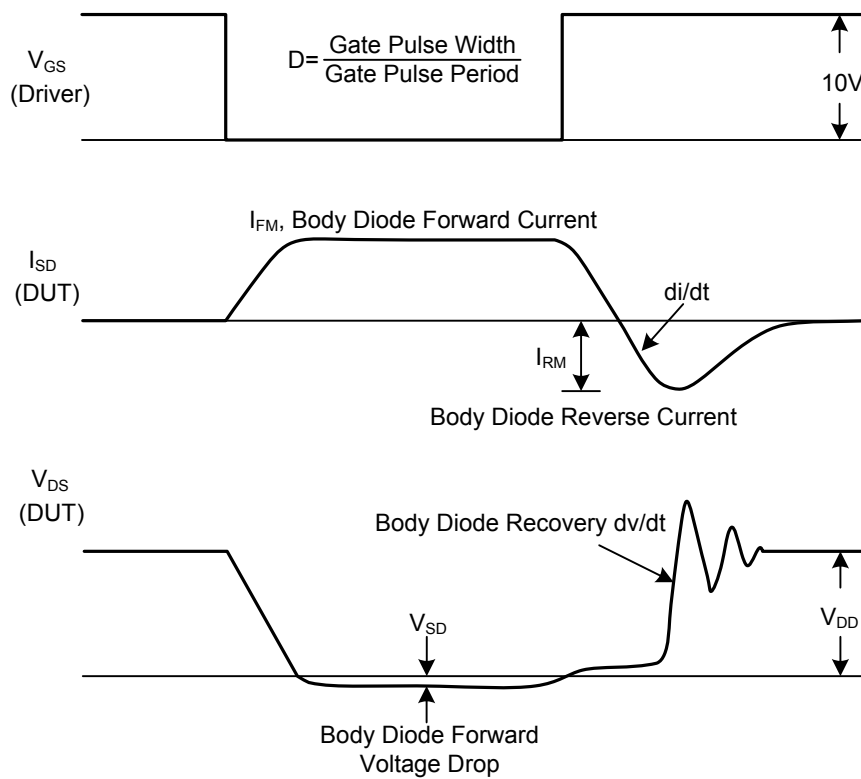
Notes: 1. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%.

2. Essentially independent of operating ambient temperature.

■ TEST CIRCUITS AND WAVEFORMS



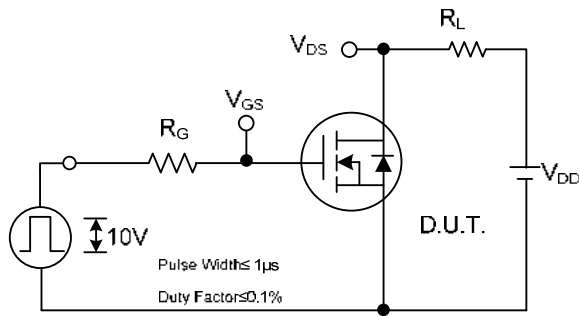
Peak Diode Recovery dv/dt Test Circuit



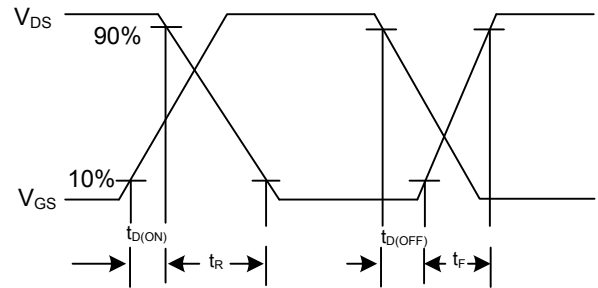
Peak Diode Recovery dv/dt Test Circuit and Waveforms

Peak Diode Recovery dv/dt Waveforms

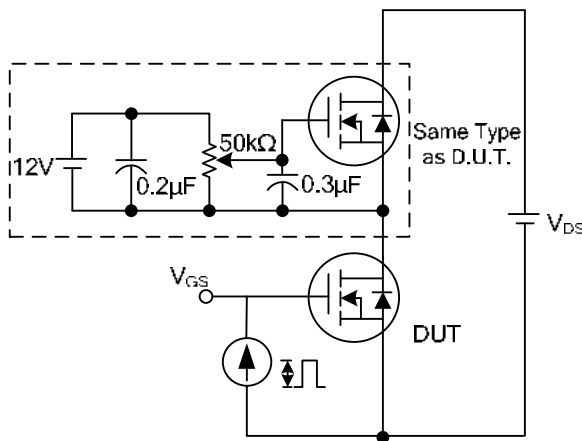
■ TEST CIRCUITS AND WAVEFORMS(Cont.)



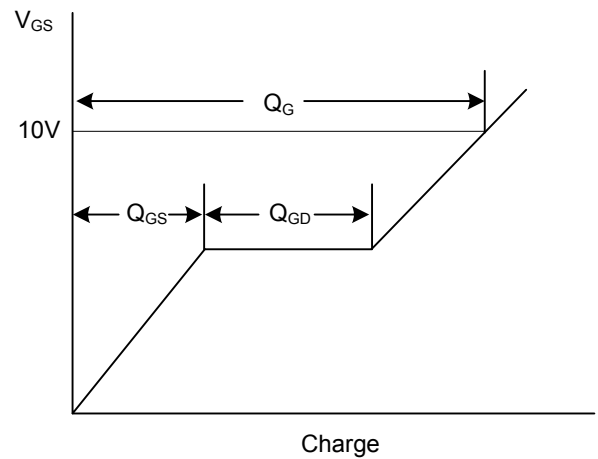
Switching Test Circuit



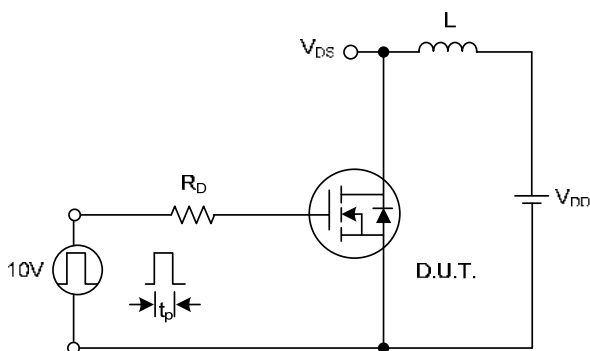
Switching Waveforms



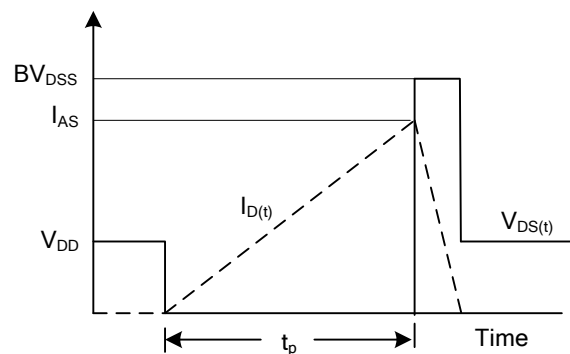
Gate Charge Test Circuit



Gate Charge Waveform

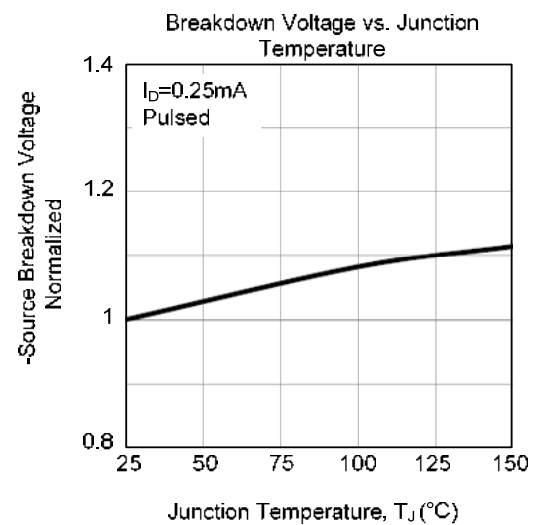
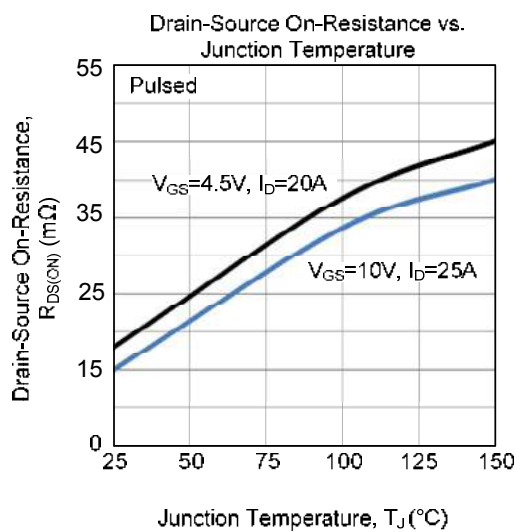
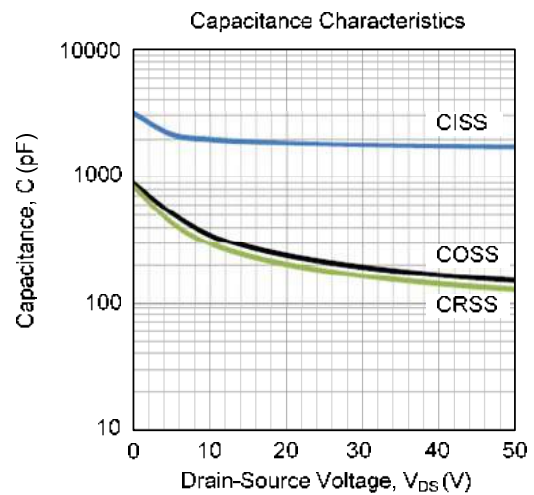
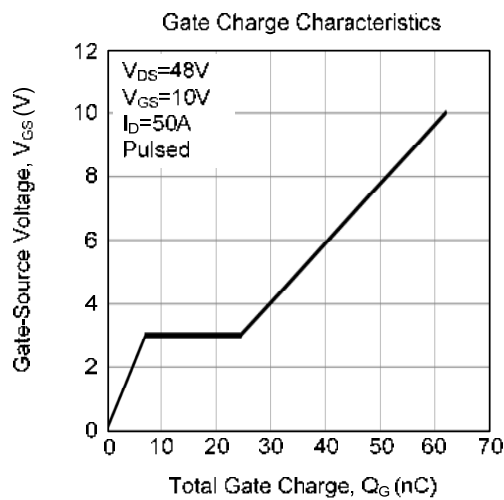
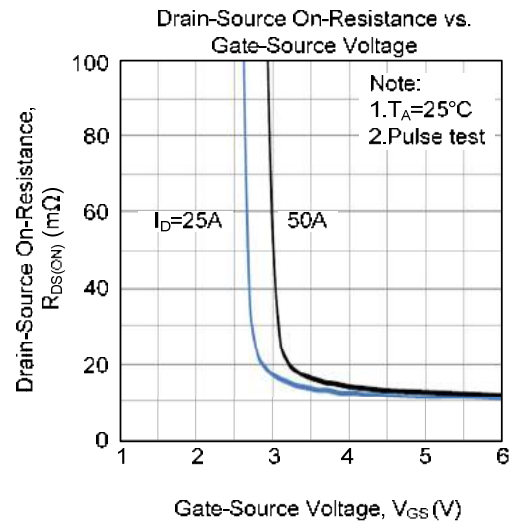
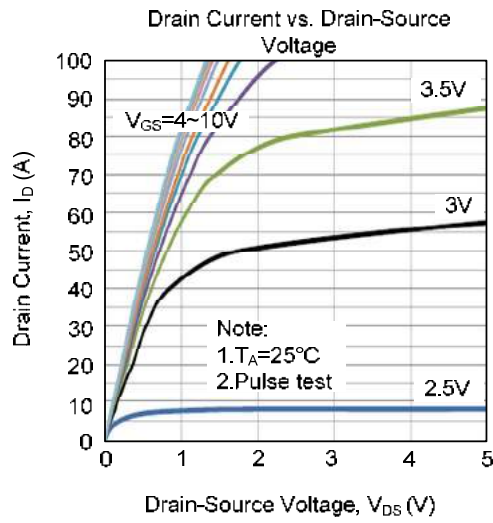


Unclamped Inductive Switching Test Circuit

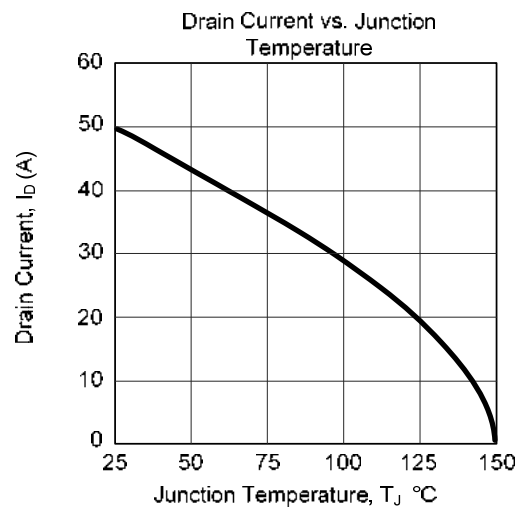
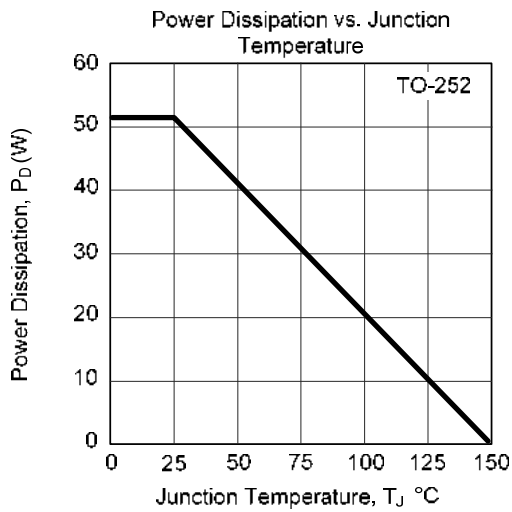
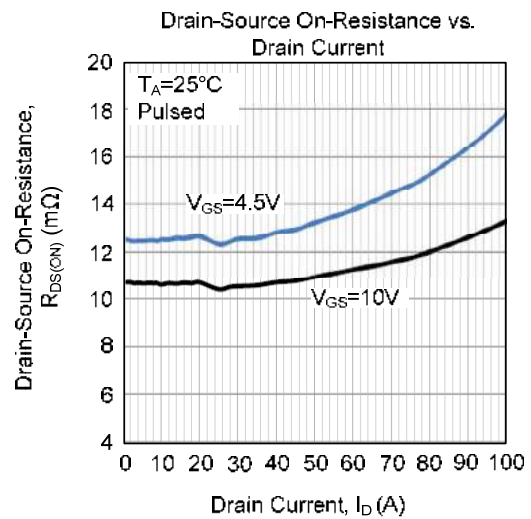
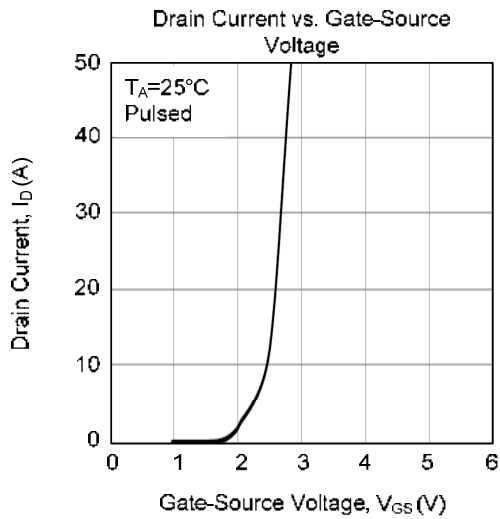
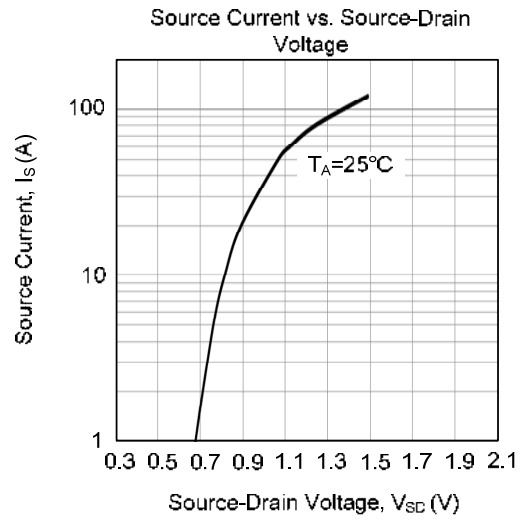
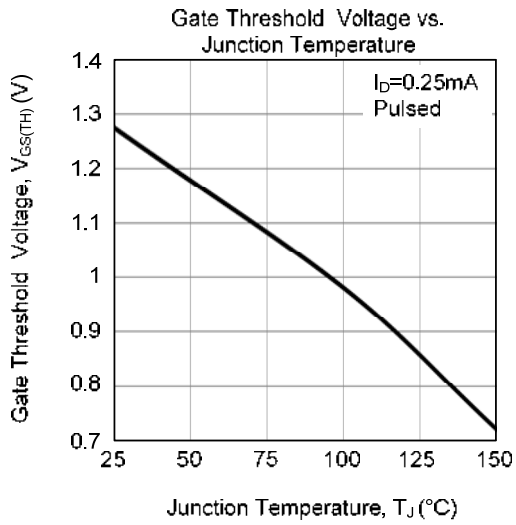


Unclamped Inductive Switching Waveforms

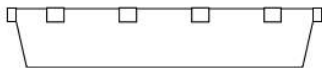
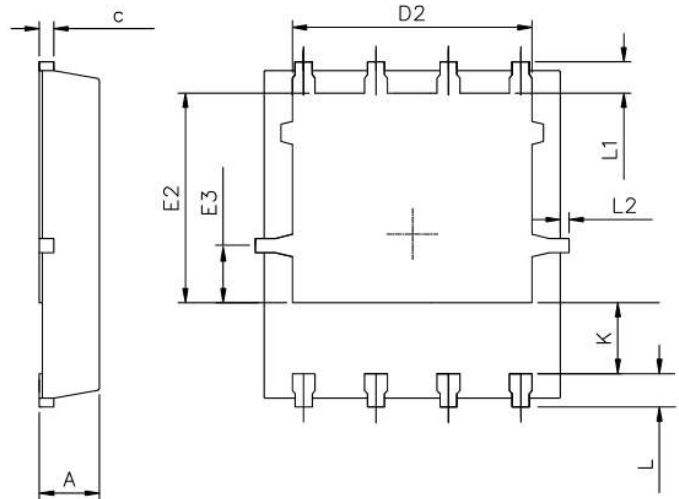
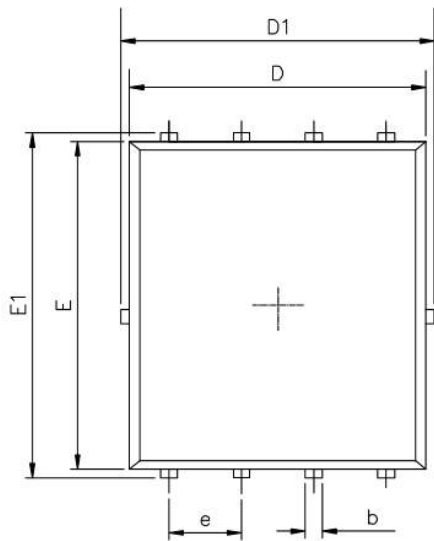
■ TYPICAL CHARACTERISTICS



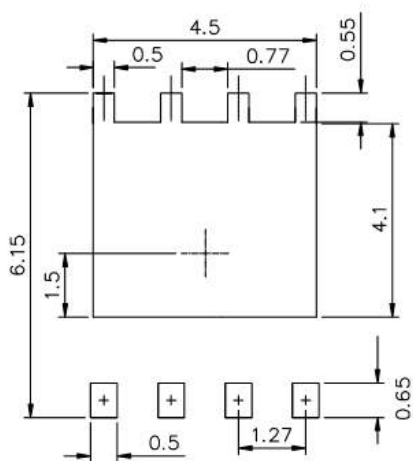
■ TYPICAL CHARACTERISTICS(Cont.)



■ 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

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