

PRODUCT CHARACTERISTICS

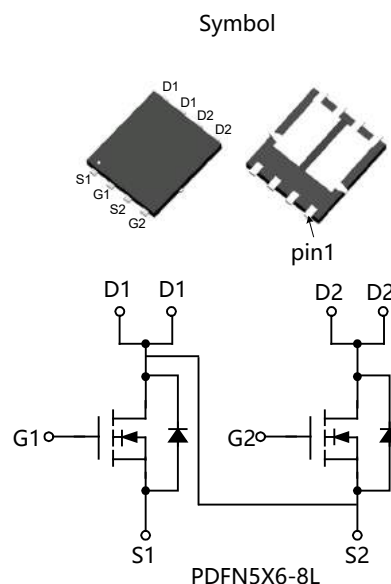
V_{DS}	500V
$R_{DS(on)}$ Typ@ $V_{GS}=10V$	1.5Ω
I_D	5A

APPLICATIONS

- High frequency switching mode power supply
- Electronic ballast
- LED power supply

FEATURES

- Fast switching capability
- Avalanche energy specified
- Improved dv/dt capability, high ruggedness



ORDER INFORMATION

Order codes		Package	Packing
Halogen-free	Halogen		
N/A	MOT50215SG	PDFN5X6-8L	5000pieces/Reel

ABSOLUTE MAXIMUM RATINGS($T_c=25^\circ\text{C}$, unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain-source voltage		V_{DS}	500	V
Gate-source voltage		V_{GS}	± 30	V
Drain current	Continuous	I_D	5	A
	Pulsed(Note 2)	I_{DM}	20	A
Avalanche energy	Single pulsed(Note 3)	E_{AS}	151	mJ
Peak diode recovery dv/dt(Note 4)		dv/dt	4.5	V/ns
Power dissipation		P_D	50	W
Junction temperature		T_J	+150	$^\circ\text{C}$
Storage temperature		T_{STG}	-55~+150	$^\circ\text{C}$

Notes 1 Absolute maximum ratings are those baluse beyond which the device could be permanently damaged

Absolute maximum ratings are stress ratings only and functional device operation is not implied

2 Repetitive rating pulse width limited by maximum junction temperature

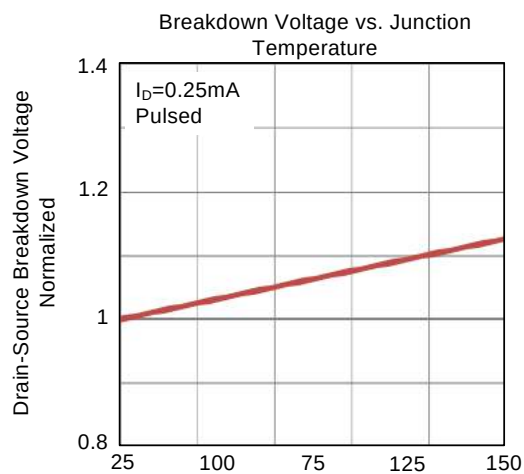
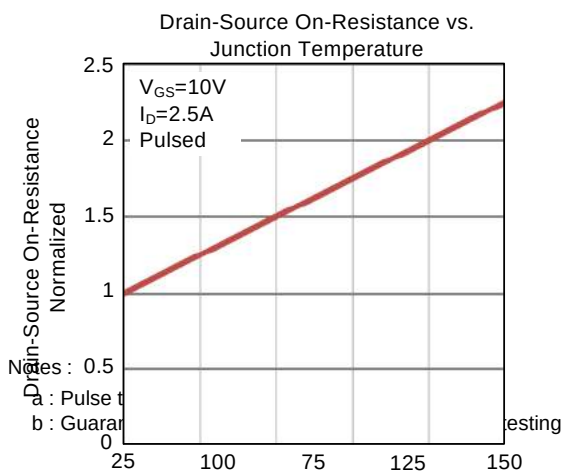
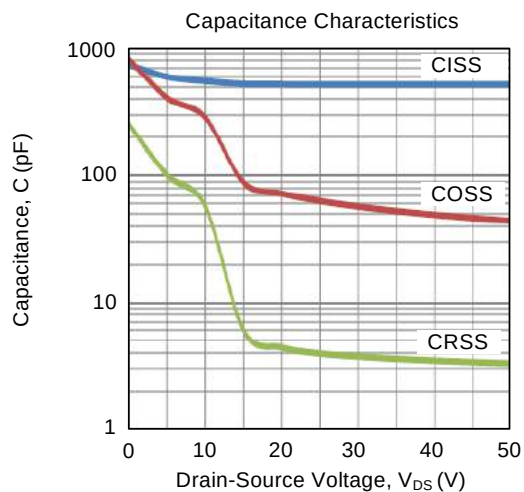
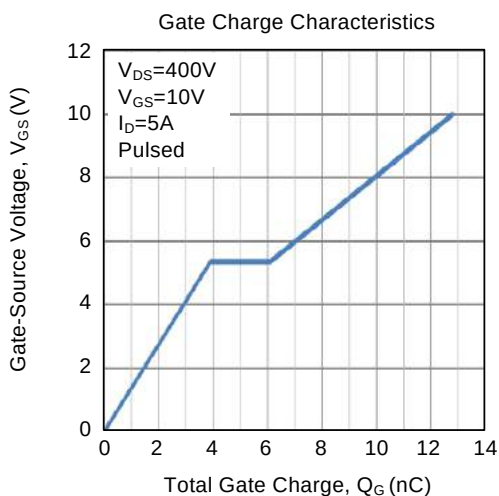
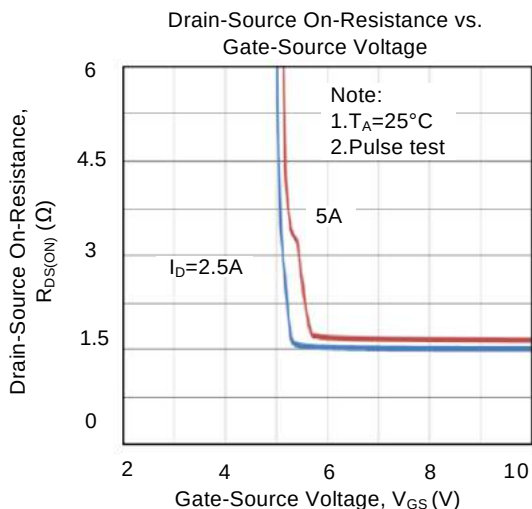
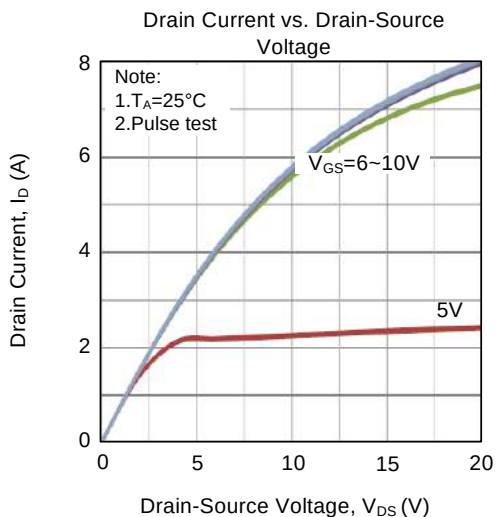
3 $L=10\text{mH}$, $I_{AS}=5.5\text{A}$, $V_{DD}=50\text{V}$, $R_G=25\Omega$ starting $T_J=25^\circ\text{C}$

4 $I_{SD}\leq 5\text{A}$, $di/dt\leq 100\text{A/us}$, $V_{DD}\leq BV_{DS}$, starting $T_J=25^\circ\text{C}$

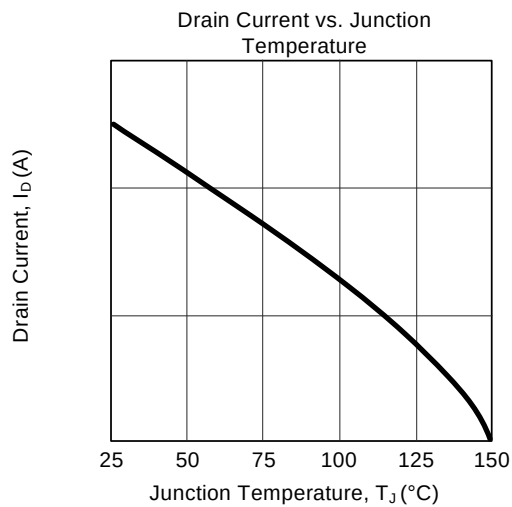
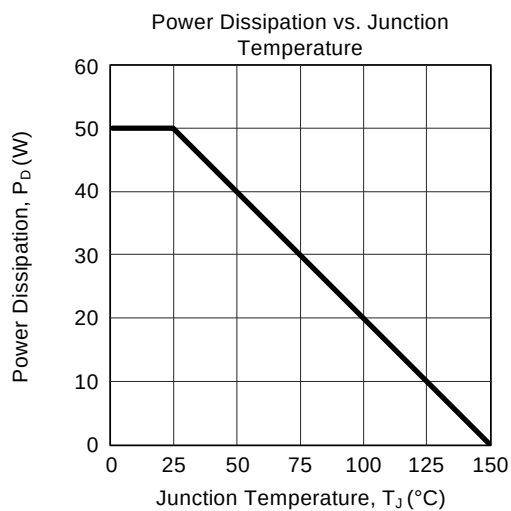
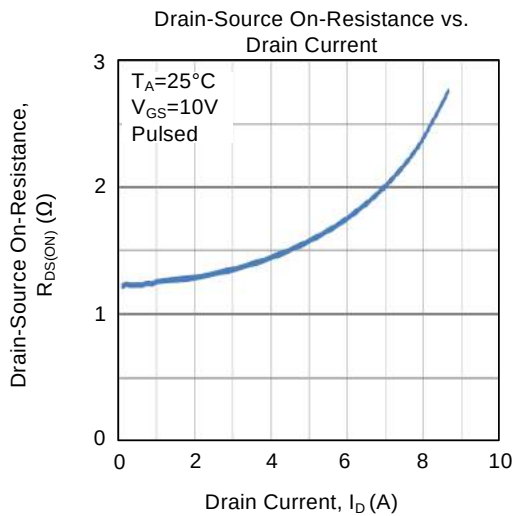
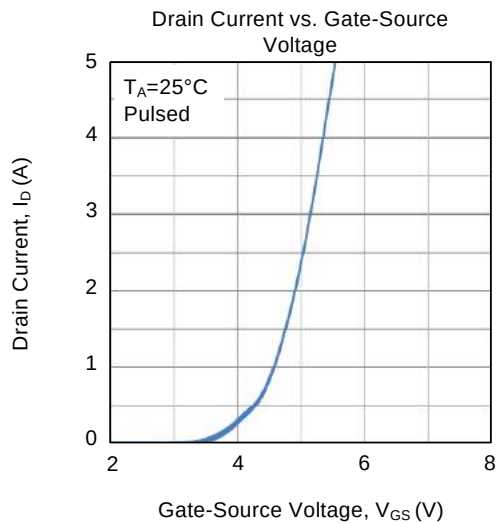
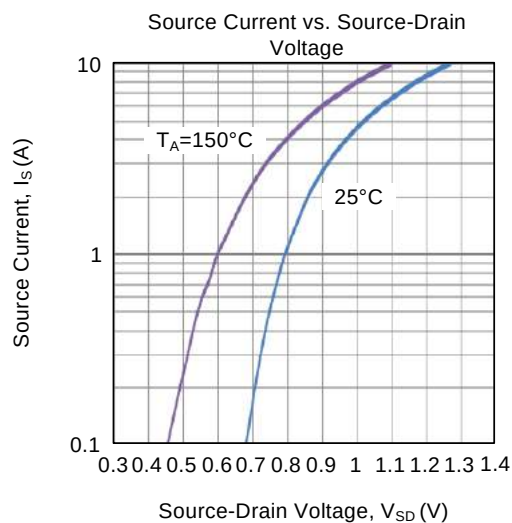
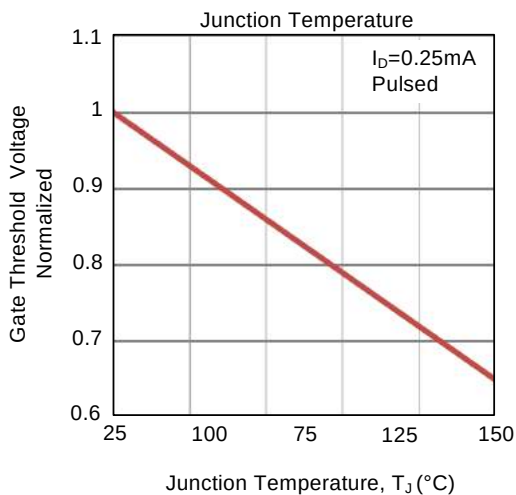
■ ELECTRICAL CHARACTERISTICS (Tc=25°C, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	BV_{DSS}	$V_{GS}=0V, I_{DS}=250\mu A$	500	-	-	V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	2	-	4	V
Drain-source leakage current	I_{DSS}	$V_{DS}=500V, V_{GS}=0V$	-	-	1	μA
Gate-source leakage current	I_{GSS}	$V_{GS}=\pm 30V, V_{DS}=0V$	-	-	± 100	nA
On-state resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=2.5A$	-	1.5	1.8	Ω
Dynamic characteristics						
Input capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=25V$ $f=1MHz$	-	625	-	pF
Output capacitance	C_{oss}		-	80	-	
Reverse transfer capacitance	C_{rss}		-	15	-	
Switching characteristics						
Total gate charge	Q_g	$V_{DS}=400V, V_{GS}=10V,$ $I_D=5A$	-	18	-	nC
Gate-source charge	Q_{gs}		-	2.2	-	
Gate-drain charge	Q_{gd}		-	9.7	-	
Turn-on delay time	$t_{d(on)}$	$V_{DD}=250V, I_D=5A$ $R_G=25\Omega$	-	12	-	nS
Turn-on rise time	t_r		-	46	-	
Turn-off delay time	$t_{d(off)}$		-	50	-	
Turn-off fall time	t_f		-	48	-	
Source-drain diode ratings and characteristics						
Maximum continuous drain-source diode forward current	I_S		-	-	5	A
Maximum pulsed drain-source diode forward current	I_{SM}		-	-	20	A
Drain-source diode forward voltage	V_{SD}	$I_S=5A, V_{GS}=0V,$	-	-	1.4	V
Reverse recovery time	t_{rr}	$I_S=5A, V_{GS}=0V,$	-	150	-	nS
Reverse recovery charge	Q_{rr}	$dI_F/dt=100A/\mu s,$	-	0.25	-	μC

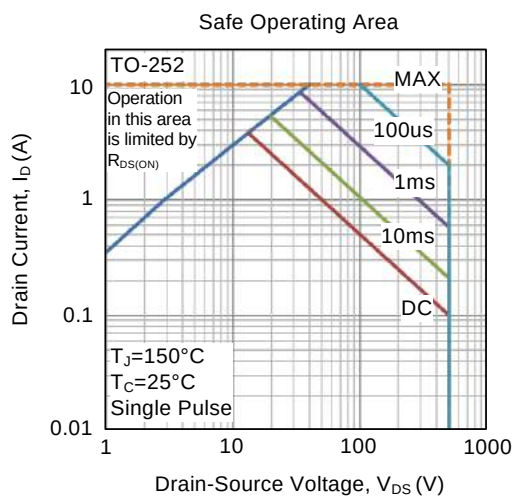
■ TYPICAL CHARACTERISTICS



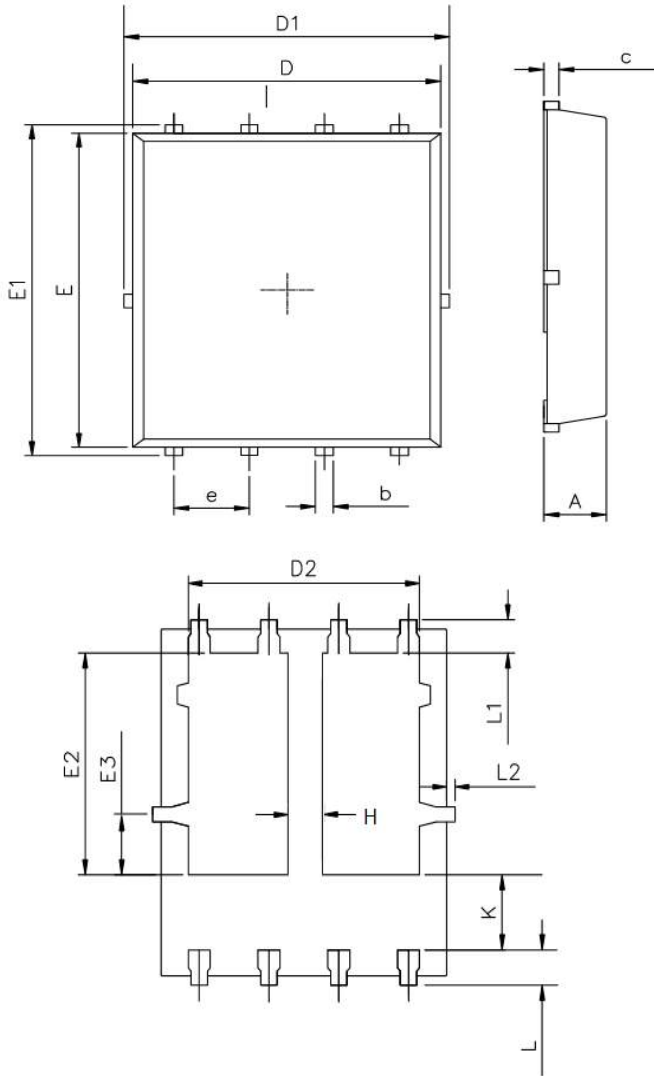
■ TYPICAL CHARACTERISTICS(Cont.)



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■ 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
H	0.5	0.6	0.7