

■ PRODUCT CHARACTERISTICS

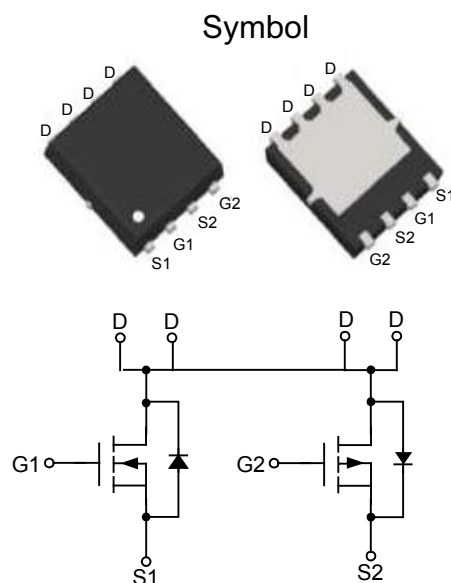
N-Channel	P-Channel
$BV_{DSS} = 30V$	$BV_{DSS} = -30V$
$R_{DS(on)} (@V_{GS} = 10V) < 11m\Omega$	$R_{DS(on)} (@V_{GS} = -10V) < 15m\Omega$
$R_{DS(on)} (@V_{GS} = 4.5V) < 13m\Omega$	$R_{DS(on)} (@V_{GS} = -4.5V) < 20m\Omega$

■ APPLICATIONS

- High Frequency Point-of-Load
Synchronous Buck Converter For
MB/NB/VGA
- Networking DC-DC Power System
- CCFL Back-light Inverter

■ GENERAL DESCRIPTION

- Low gate charge.
- Advanced high cell density Trench technology.
- Excellent CdV/dt effect decline



■ ODER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT3M012G	PDFN5X6-8L	5000 pieces /Reel

■ ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ C$, unless otherwise specified)

Parameter	Symbol	Ratings		Unit
		N-channel	P-channel	
Drain-Source Voltage	V_{DS}	30	-30	V
Gate-Source Voltage	V_{GS}	± 20	± 20	V
Drain Current ($T_A = 25^\circ C$)	I_D	30	-30	A
Pulsed Drain Current	I_{DM}	120	-120	A
Power Dissipation ($T_A = 25^\circ C$)	P_D	35	35	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	-55 ~ +150	$^\circ C$

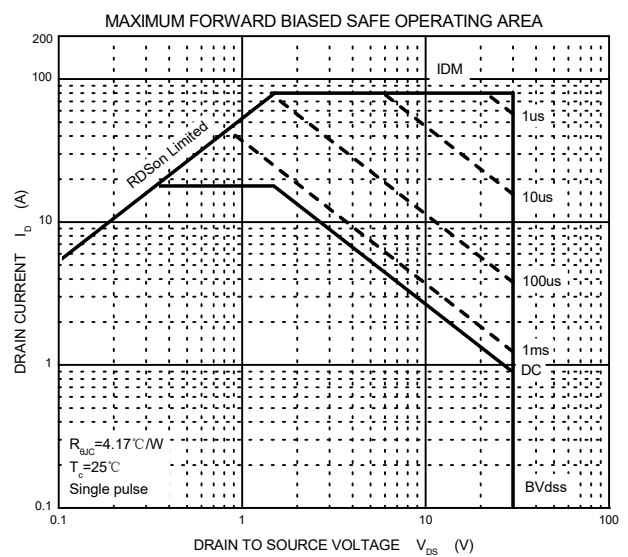
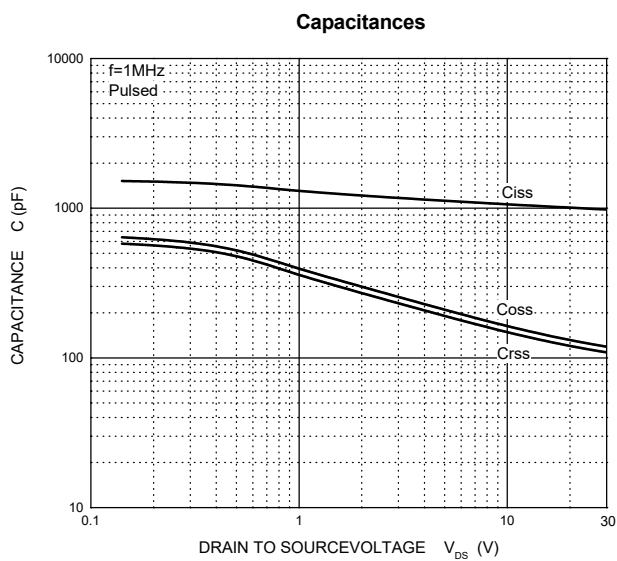
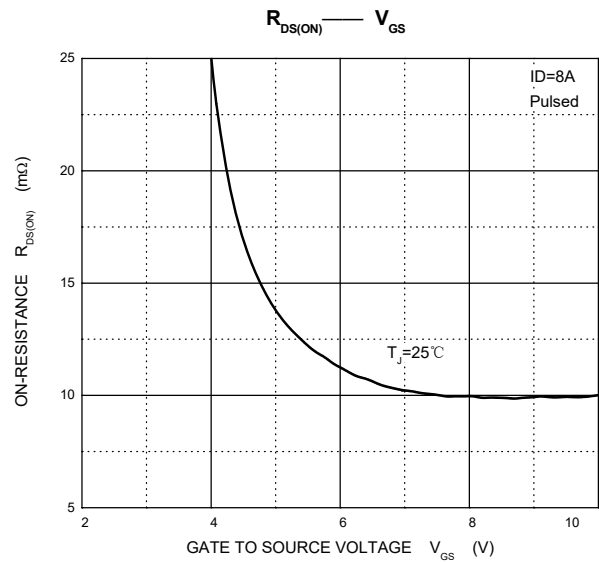
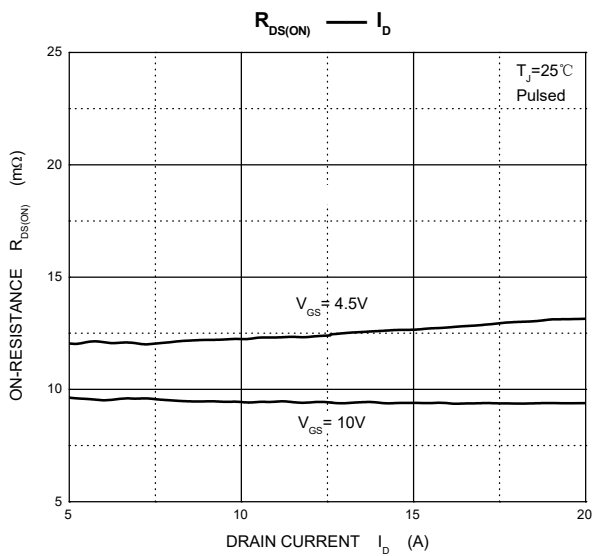
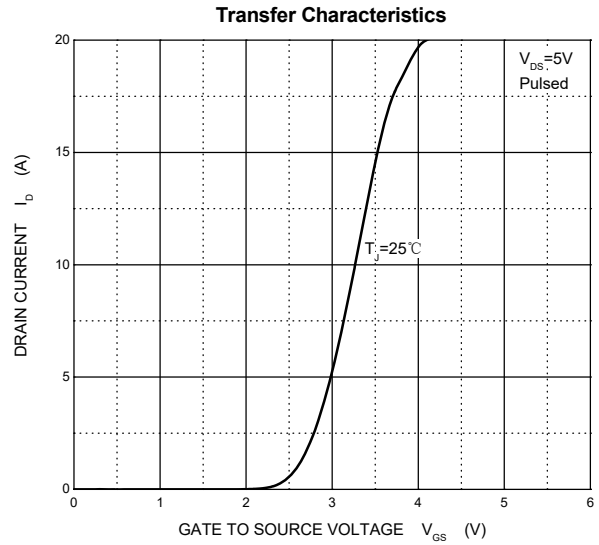
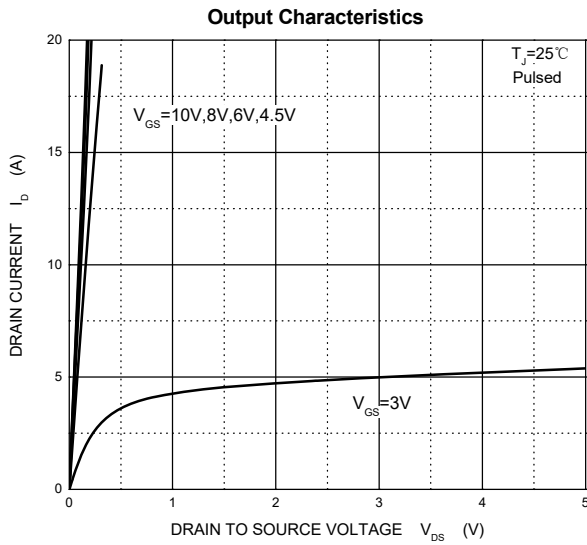
■ N-Channel Electrical Characteristics (T_C=25°C unless otherwise specified)

Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250uA	30	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =30V, V _{GS} =0V,	-	-	1.0	uA
		T _J =125°C	-	-	100	uA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
On characteristics						
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _b =250uA	1.4	1.8	2.5	V
Static drain-source on-sate resistance	R _{DS(ON)}	V _{GS} = 10V ,I _D =8A	-	9	11	mΩ
		V _{GS} = 4.5V ,I _b =6A	-	10	13	mΩ
Dynamic characteristics						
Input capacitance	C _{iSS}	V _{DS} =15V, V _{GS} =0V f=1MHz	-	1000	-	pF
Output capacitance	C _{OSS}		-	143	-	pF
Reverse transfer capacitance	C _{rSS}		-	130	-	pF
Gate resistance	R _g	f=1MHz	-	6.0	-	Ω
Switching characteristics						
Total gate charge	Q _g	V _{GS} =10V, V _{DS} =15V I _D =8A	-	22	-	nC
Gate-source charge	Q _{gs}		-	2.8	-	nC
Gate-drain charge	Q _{gd}		-	5.2	-	nC
Turn-on delay time	td _(on)	V _{DD} =15V, R _L =5Ω V _{GS} =10V, R _{GEN} =10Ω	-	25	-	nS
Turn-on rise time	tr		-	40	-	nS
Turn-off delay time	td _(off)		-	140	-	nS
Turn-off fall time	tf		-	80	-	nS
Drain-source diode characteristics						
Drain-source diode forward voltage	V _{SD}	V _{GS} =0V, I _S =8A	-	-	1.2	V
Continuos drain-source diode forward current	I _S		-	-	30	A
Pulsed drain-source diode forward current	I _{SM}		-	-	100	A

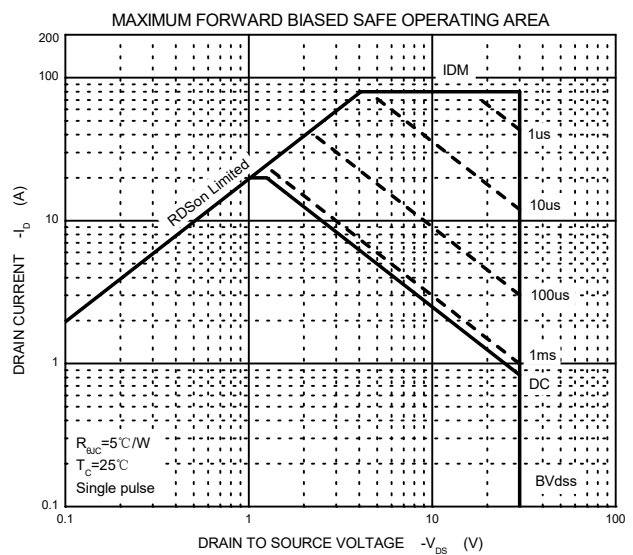
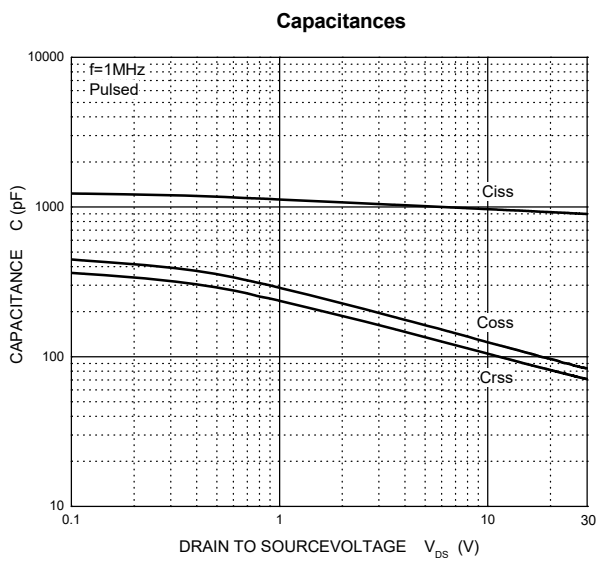
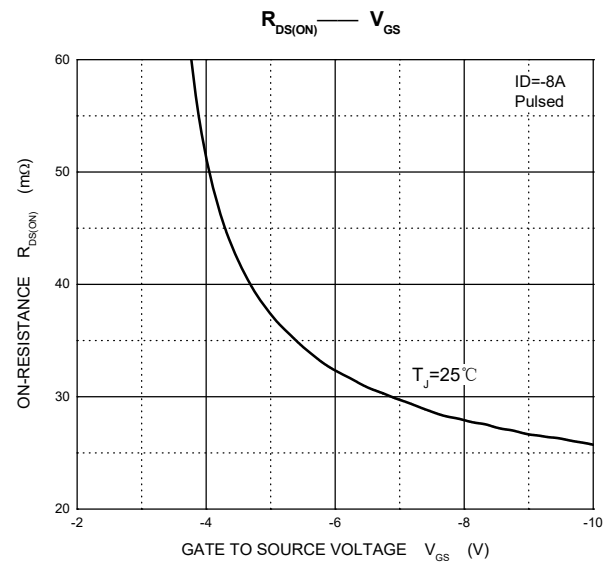
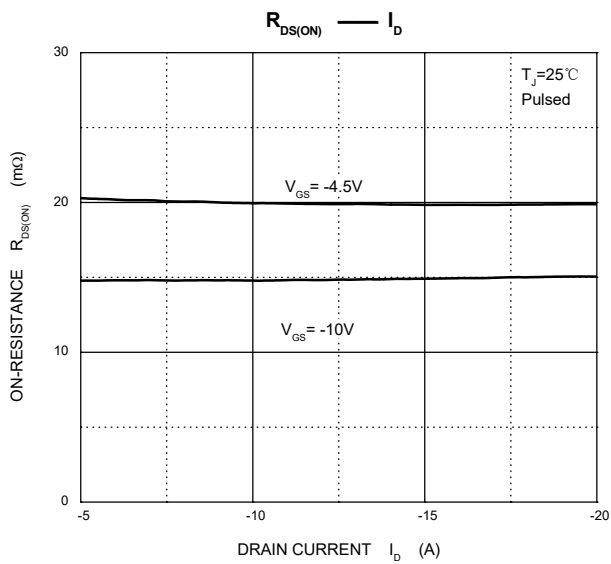
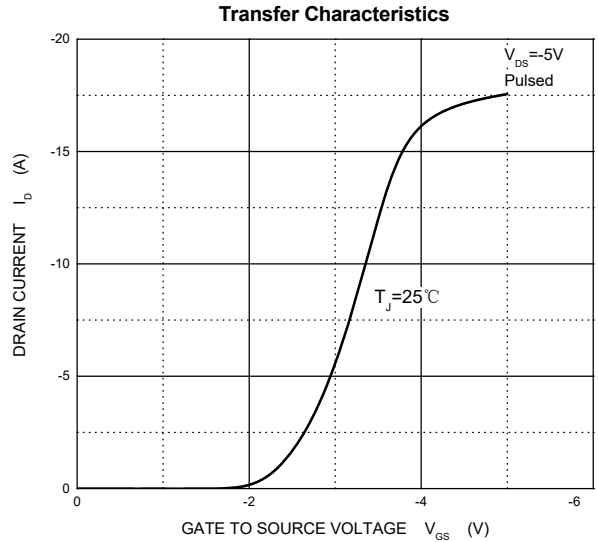
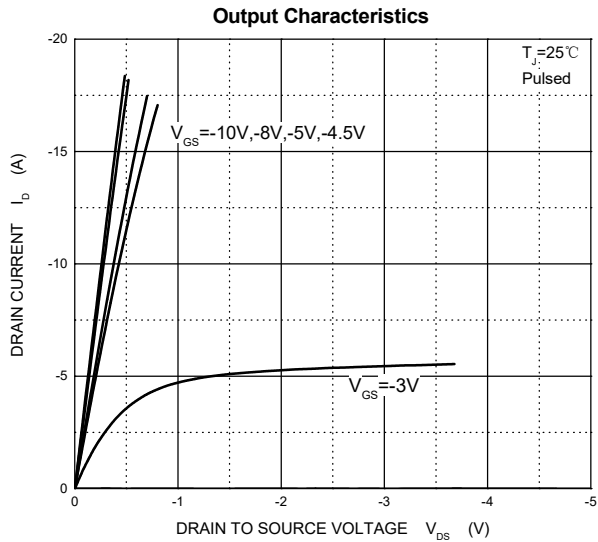
■ P-Channel Electrical Characteristics (T_c=25°C unless otherwise specified)

Parameter	Symbol	Test condition	min	typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$	-	-	-1.0	μA
		$T_J=125^{\circ}C$	-	-	-100	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	± 100	nA
On characteristics						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.4	-1.5	-2.5	V
Static drain-source on-sate resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-8A$	-	11	15	m Ω
		$V_{GS}=-4.5V, I_D=-6A$	-	15	20	m Ω
Dynamic characteristics						
Input capacitance	C_{ISS}	$V_{DS}=-15V, V_{GS}=0V$ $f=1MHz$	-	949	-	pF
Output capacitance	C_{OSS}		-	107	-	pF
Reverse transfer capacitance	C_{rSS}		-	90	-	pF
Gate resistance	R_g	$f=1MHz$	-	22	-	Ω
Switching characteristics						
Total gate charge	Q_g	$V_{GS}=-10V, V_{DS}=-15V$ $I_D=-8A$	-	28	-	nC
Gate-source charge	Q_{gs}		-	3.2	-	nC
Gate-drain charge	Q_{gd}		-	8.5	-	nC
Turn-on delay time	$td_{(on)}$	$V_{DD}=-15V, R_L=5\Omega$ $V_{GS}=-10V, R_{GEN}=10\Omega$	-	32	-	nS
Turn-on rise time	tr		-	55	-	nS
Turn-off delay time	$td_{(off)}$		-	150	-	nS
Turn-off fall time	tf		-	60	-	nS
Drain-source diode characteristics						
Drain-source diode forward voltage	V_{SD}	$V_{GS}=0V, I_S=-5A$	-	-	-1.2	V
Continuos drain-source diode forward current	I_S		-	-	-20	A
Pulsed drain-source diode forward current	I_{SM}		-	-	-80	A

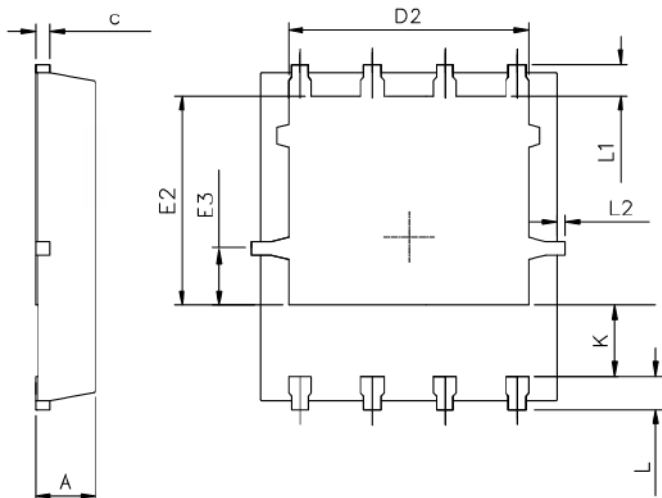
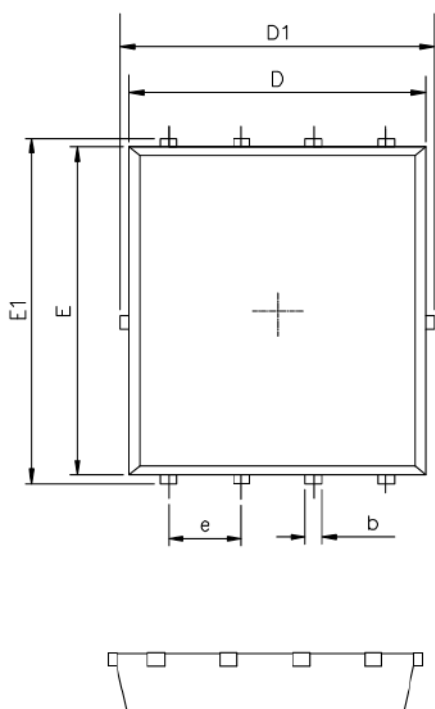
■ N-Typical Characteristics



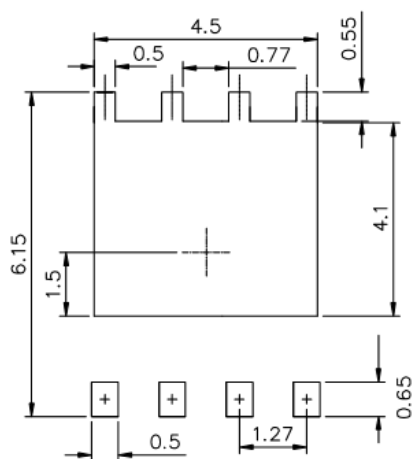
■ P-Typical Characteristics



■ 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