

■ PRODUCT CHARACTERISTICS

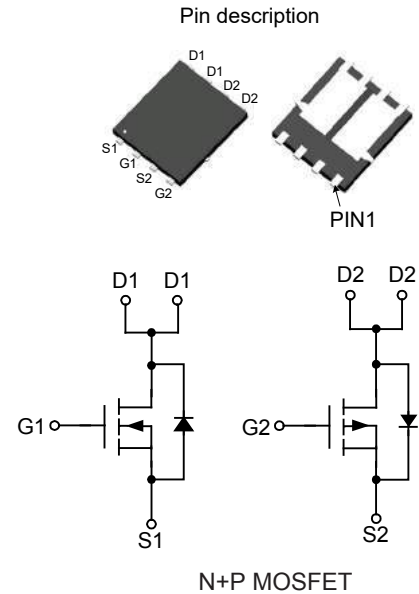
N-Channel	P-Channel
$BV_{DSS} = 30V$	$BV_{DSS} = -30V$
$R_{DS(on)} (@V_{GS} = 10V) < 9m\Omega$	$R_{DS(on)} (@V_{GS} = -10V) < 25m\Omega$
$R_{DS(on)} (@V_{GS} = 4.5V) < 13m\Omega$	$R_{DS(on)} (@V_{GS} = -4.5V) < 35m\Omega$

■ FEATURES

- High density cell design for ultra low $R_{ds(on)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Special process technology for high ESD capability

■ APPLICATIONS

- SMPS and general purpose applications
- Hard switchen and high frequency circuits
- Uninterruptible power supply



■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-free	Halogen		
N/A	MOT3628G	PDFN5X6	5000 pieces /Reel

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

Parameter		Symbol	N-channel	P-channel	Unit
Drain-Source Voltage		V_{DS}	30	-30	V
Gate-Source Voltage		V_{GS}	± 20	± 20	V
Continuous Drain Current	$T_C = 25^\circ C$	I_D	25	-19	A
	$T_C = 100^\circ C$		17.7	-13.4	A
Pulsed Drain Current		I_{DM}	90	-60	A
Maximum Power Dissipation	$T_C = 25^\circ C$	P_D	21		W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 To 175		$^\circ C$
Thermal Resistance, Junction-to-Case		$R_{\theta JC}$	7		$^\circ C/W$

■ N-ELECTRICAL CHARACTERISTICS ($T_c=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV_{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	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.4	2.5	V
Drain-Source On-State Resistance	$r_{DS(ON)}$	$V_{GS}=10V, I_D=7A$	-	9.0	13	m Ω
		$V_{GS}=4.5V, I_D=6A$	-	13	19	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=7A$	-	29	-	S
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V,$ $F=1.0MHz$	-	450	-	pF
Output Capacitance	C_{oss}		-	150	-	pF
Reverse Transfer Capacitance	C_{rss}		-	90	-	pF
Switching characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=15V, R_L=2.5\Omega$ $V_{GS}=10V, R_G=3\Omega$	-	5	-	nS
Turn-on Rise Time	t_r		-	12	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	19	-	nS
Turn-Off Fall Time	t_f		-	6	-	nS
Total Gate Charge	Q_g	$V_{DS}=15V, I_D=6A,$ $V_{GS}=10V$	-	9.5	-	nC
Gate-Source Charge	Q_{gs}		-	2.0	-	nC
Gate-Drain Charge	Q_{gd}		-	1.9	-	nC
Drain-source diode characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=25A$	-	-	1.2	V
Diode Forward Current	I_S		-	-	25	A

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV_{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	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	1.4	-2.5	V
Drain-Source On-State Resistance	$r_{DS(ON)}$	$V_{GS}=-10V, I_D=-6A$	-	25	28	m Ω
		$V_{GS}=-4.5V, I_D=-5A$	-	35	42	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=-5V, I_D=-6A$	10	-	-	S
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-30V, V_{GS}=0V, F=1.0MHz$	-	920	-	pF
Output Capacitance	C_{oss}		-	140	-	pF
Reverse Transfer Capacitance	C_{rss}		-	90	-	pF
Switching characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-15V, R_L=2.5\Omega$ $V_{GS}=-10V, R_G=3\Omega$	-	8	-	nS
Turn-on Rise Time	t_r		-	30	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	22	-	nS
Turn-Off Fall Time	t_f		-	26	-	nS
Total Gate Charge	Q_g	$V_{DS}=-15V, I_D=-6A, V_{GS}=-10V$	-	16.2	-	nC
Gate-Source Charge	Q_{gs}		-	2.9	-	nC
Gate-Drain Charge	Q_{gd}		-	3.6	-	nC
Drain-source diode characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-6A$	-	-	-1.2	V
Diode Forward Current	I_S		-	-	-19	A

■ N-TYPICAL CHATAACTERISTICS

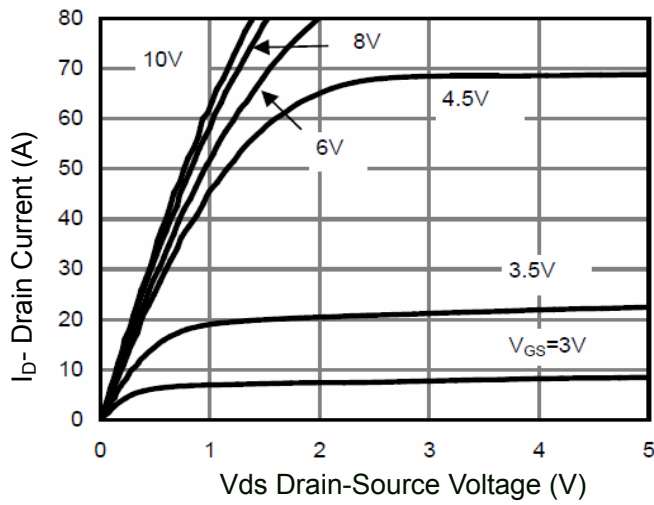


Figure 1 output characteristics

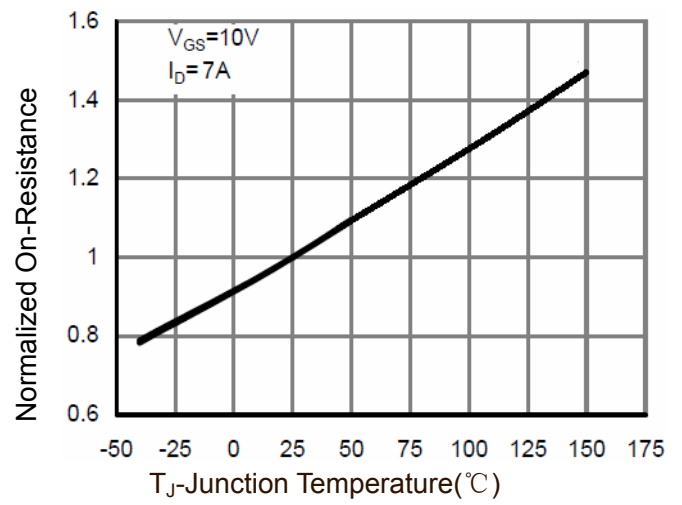


Figure 2 rdson-junction temperature

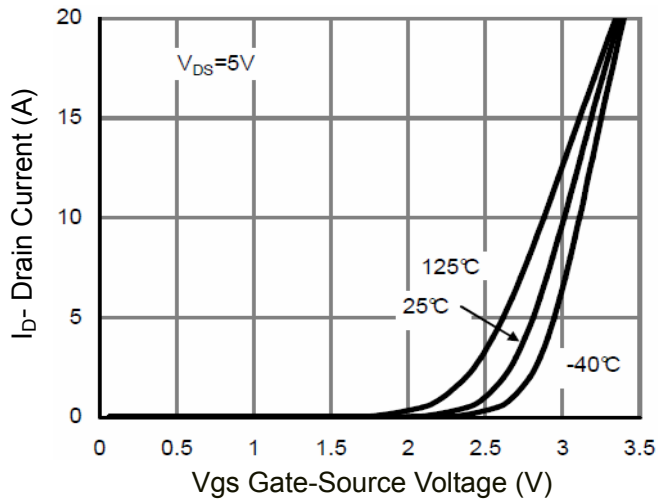


Figure 3 transfer characteristics

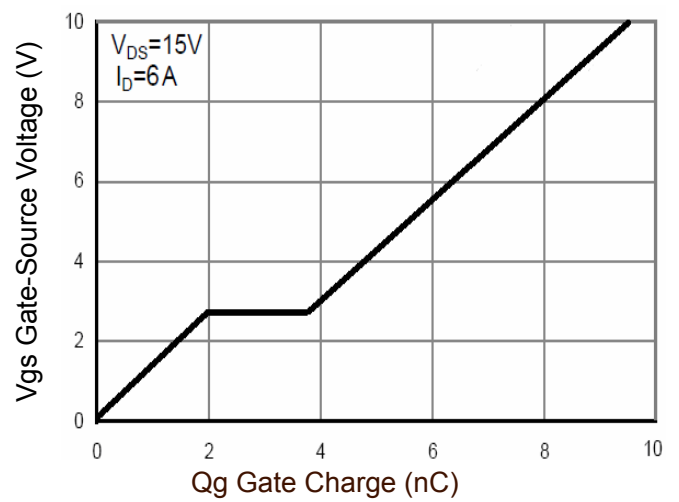


Figure 4 gate charge

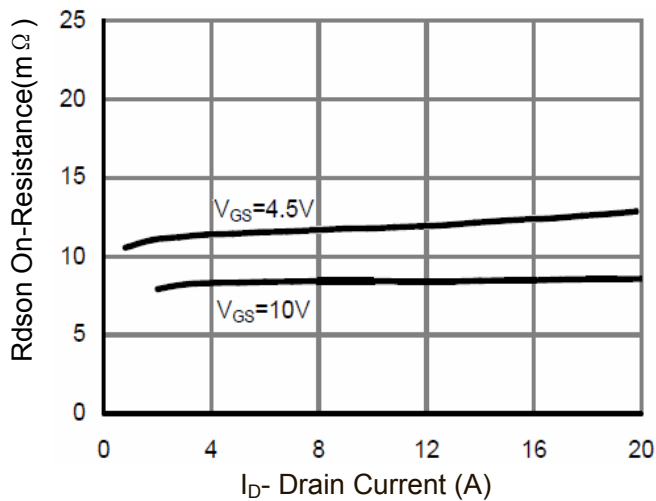


Figure 5 rdson drain current

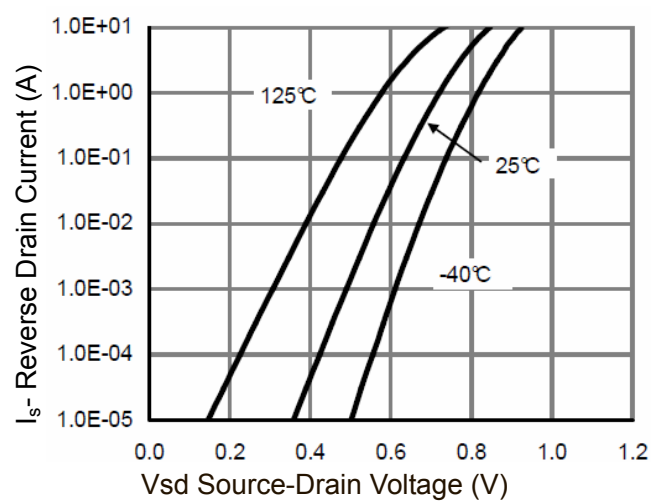


Figure 6 source-drain diode forward

■ N-TYPICAL CHATACTERISTICS(Cont,)

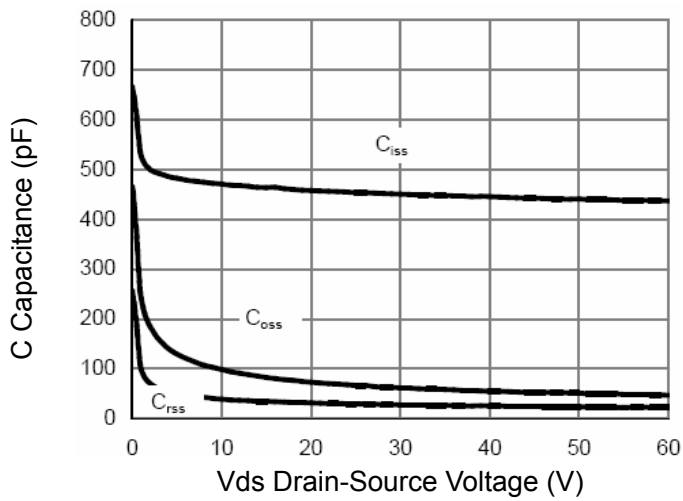


Figure 7 capacitance vs vds

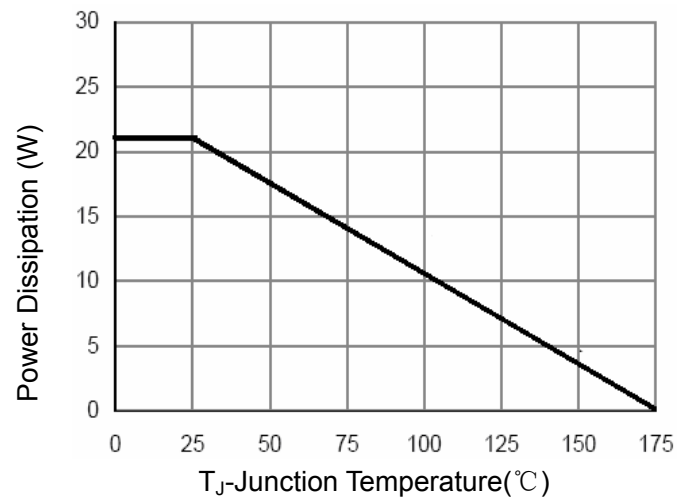


Figure 8 power de-rating

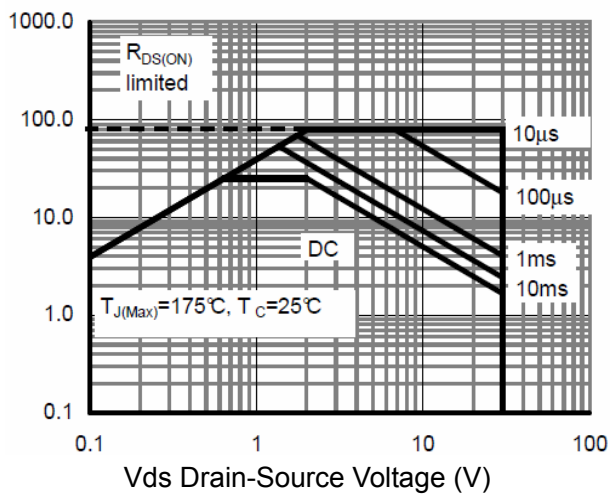


Figure 9 safe operation area

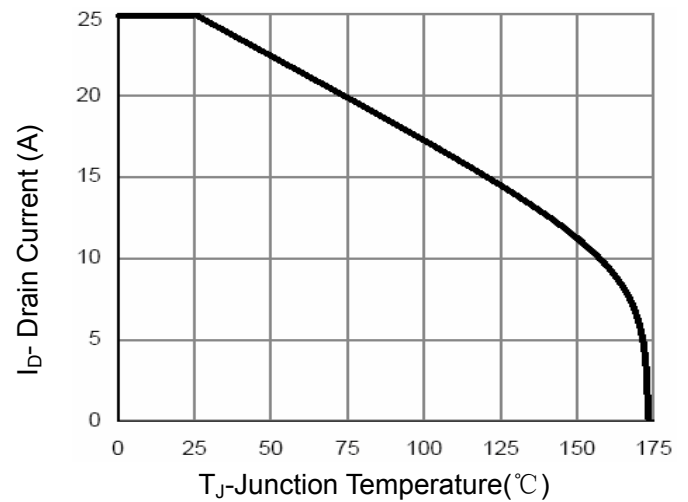


Figure 10 current de-rating

■ P-TYPICAL CHATActerISTICS

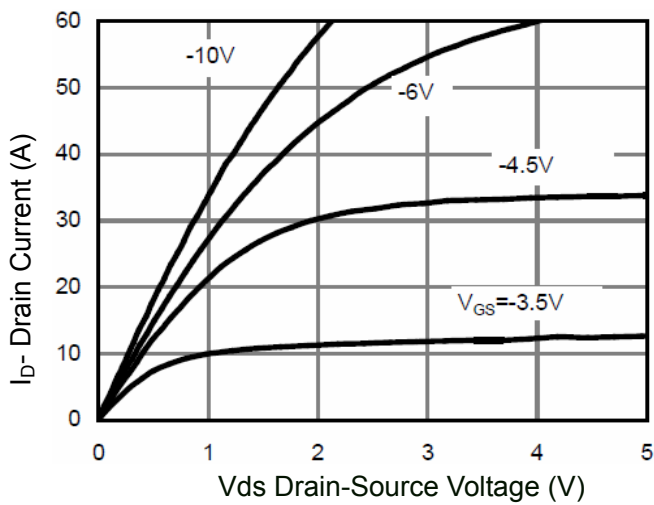


Figure 1 output characteristics

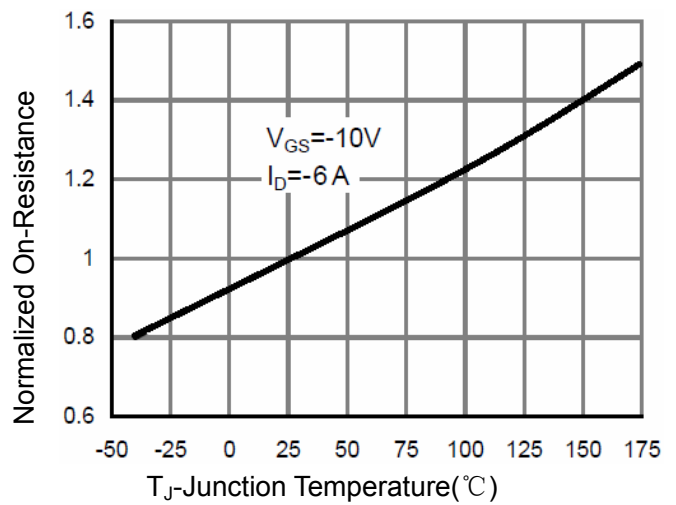


Figure 2 $r_{DS(on)}$ -junction temperature

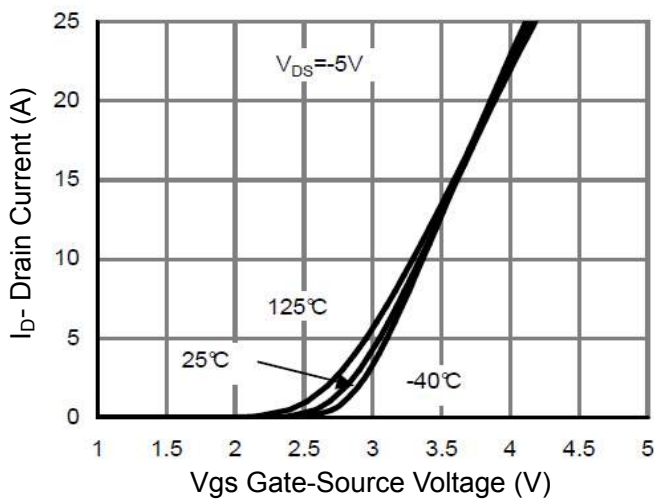


Figure 3 transfer characteristics

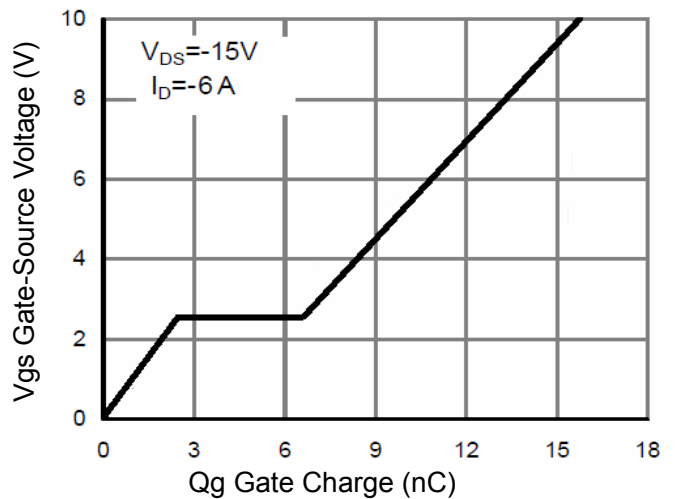


Figure 4 gate charge

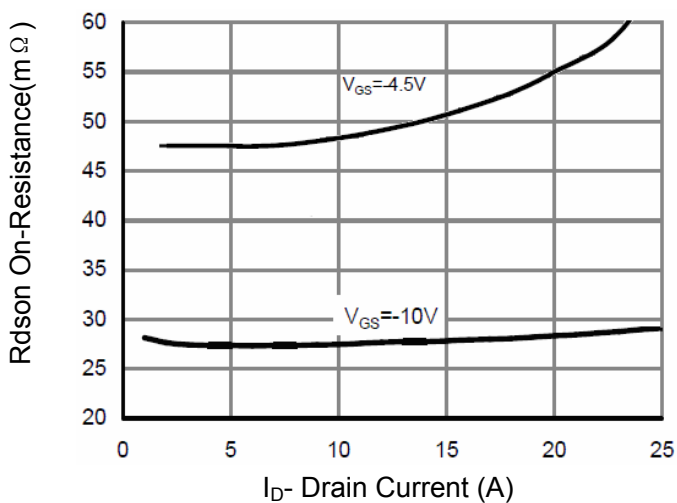


Figure 5 $r_{DS(on)}$ drain current

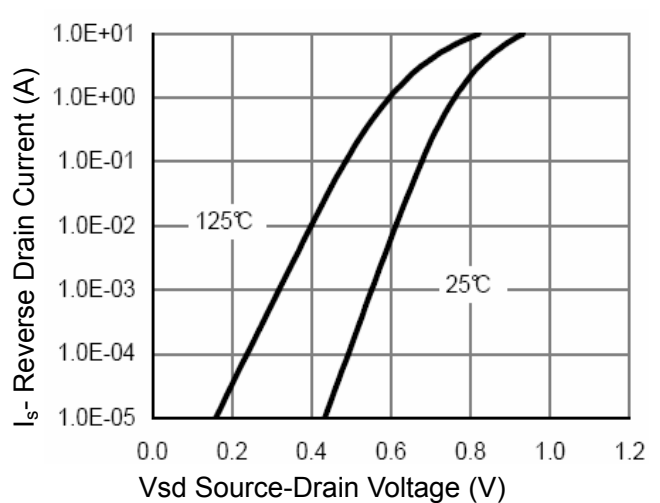
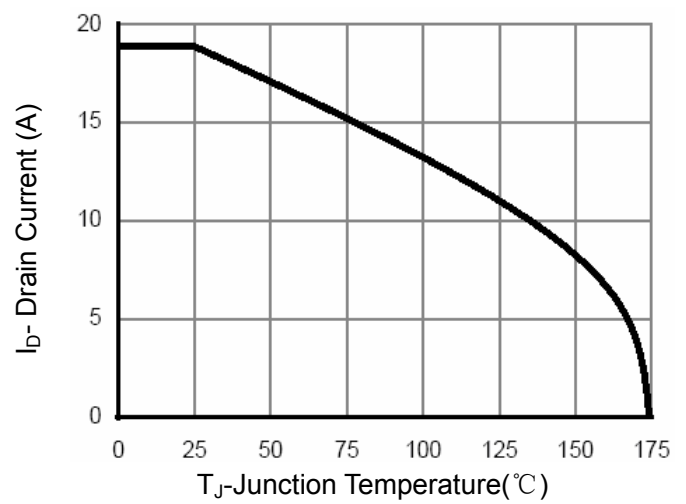
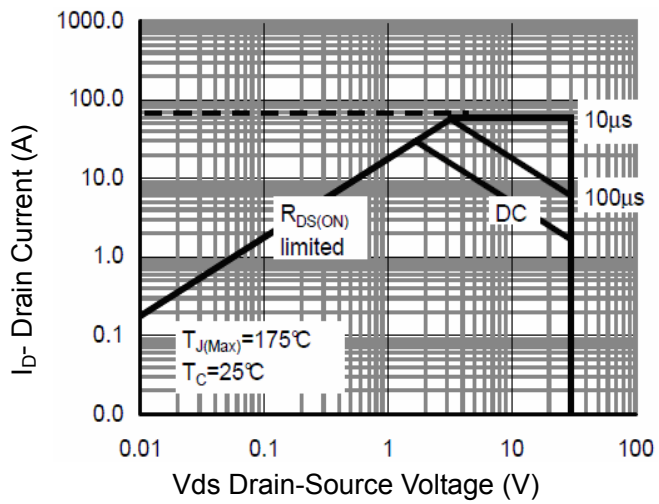
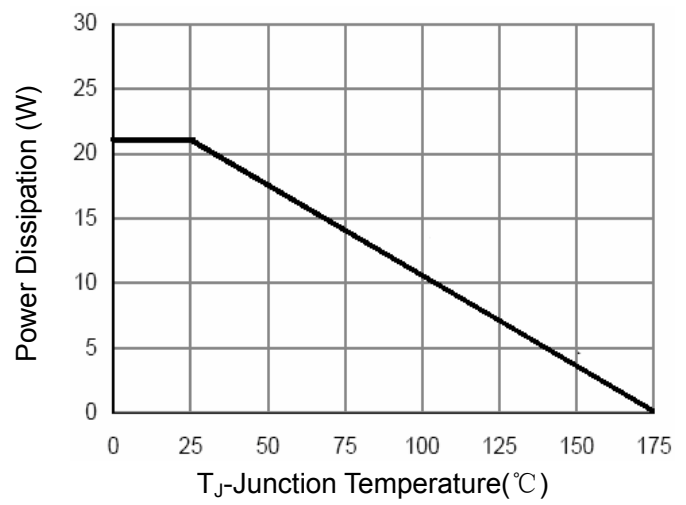
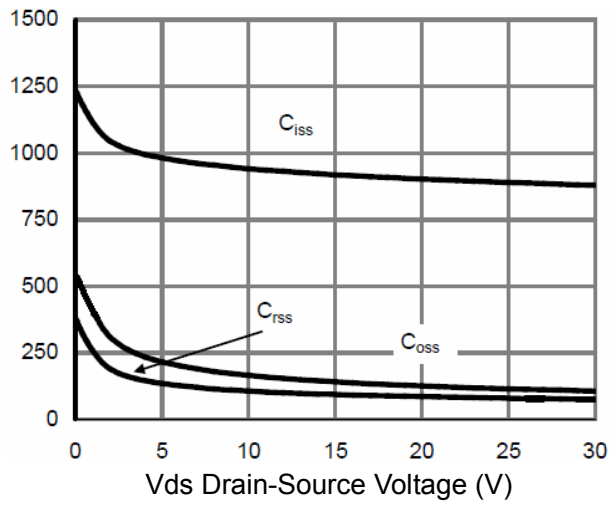
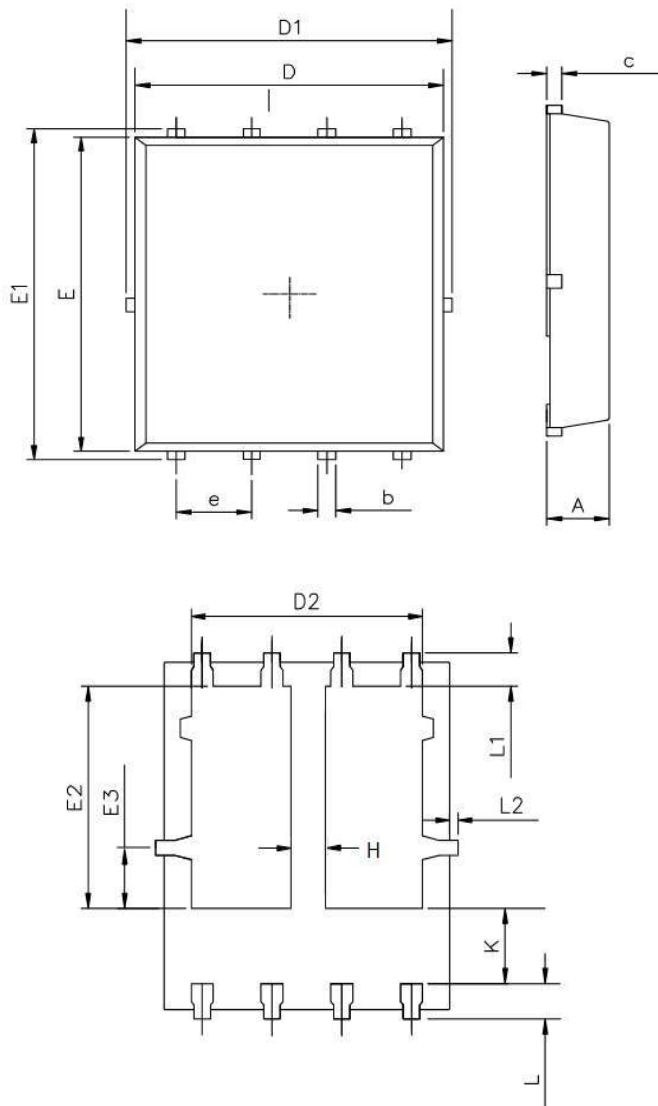


Figure 6 source-drain diode forward

■ P-TYPICAL CHATACTERISTICS(Cont,)



■ 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