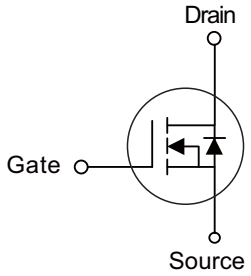
■ PRODUCT CHARACTERISTICS

VDSS	30V
R_{DS}(on)Typ(@V_{GS} =10 V)	2.4mΩ
R_{DS}(on)Typ(@V_{GS} =4.5 V)	3.8mΩ
ID	120A

Symbol

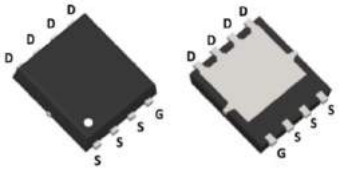


■ APPLICATIONS

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

■ FEATURES

- High density cell design gor ultra low Rdson
- Excellent package for good heat DISSIPATION



■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT3136G	PDFN5X6-8L	5000 pieces /Reel

■ ABSOLUTE MAXIMUM RATINGS (T_C = 25°C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	120	A
Drain Current-Continuous(T_C=100℃)	I_D (100℃)	84	A
Pulsed Drain Current	I_{DM}	420	A
Maximum Power Dissipation	P_D	120	W
Single pulse avalanche energy	E_{AS}	350	mJ
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	1.25	℃/W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 175	℃

■ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	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}=±20V,V_{DS}=0V	-	-	±100	nA
On characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1	1.6	3	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A	-	2.4	3.6	mΩ
		V_{GS}=4.5V, I_D=20A	-	3.8	4.5	mΩ
Gate resistance	R_G	F=1.0MHz	-	1.5	-	Ω
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=5A	10	-	-	S
Dynamic characteristics						
Input Capacitance	C_{lss}	V_{DS}=25V,V_{GS}=0V, F=1.0MHz	-	2800	-	PF
Output Capacitance	C_{oss}		-	260	-	PF
Reverse Transfer Capacitance	C_{rss}		-	240	-	PF
Switching characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=20V R_L=0.75Ω,R_{GEN}=3Ω	-	11	-	nS
Turn-on Rise Time	t_r		-	10	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	38	-	nS
Turn-Off Fall Time	t_f		-	11	-	nS
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=15V,I_D=20A	-	79	-	nC
Gate-Source Charge	Q_{gs}		-	9	-	nC
Gate-Drain Charge	Q_{gd}		-	18	-	nC
Drain-source diode characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=20A	-	-	1.2	V
Diode Forward Current	I_S		-	-	120	A
Reverse Recovery Time	t_{rr}	TJ = 25°C, I_F =20A di/dt = 100A/μs	-	58	-	nS
Reverse Recovery Charge	Qrr		-	115	-	nC

■ TYPICAL CHARACTERISTICS

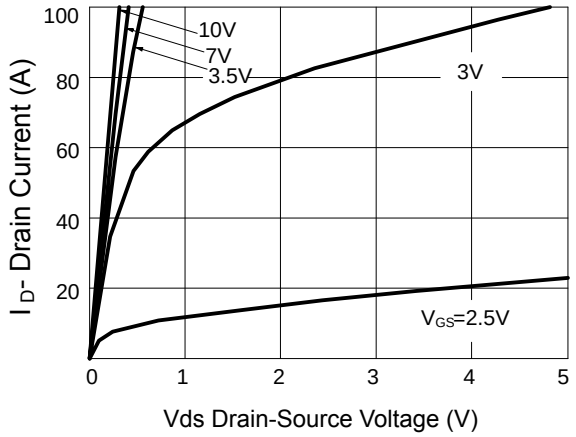


Figure 1:Output characteristics

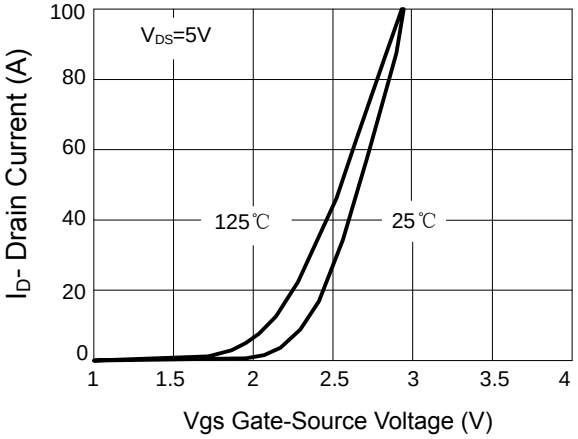


Figure 2:Transfer characteristics

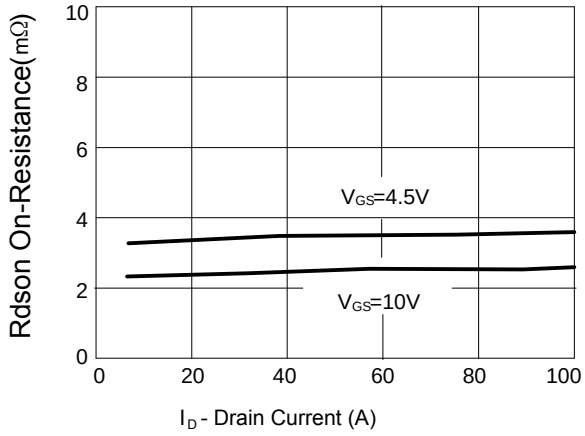


Figure 3:Rdson-drain-current

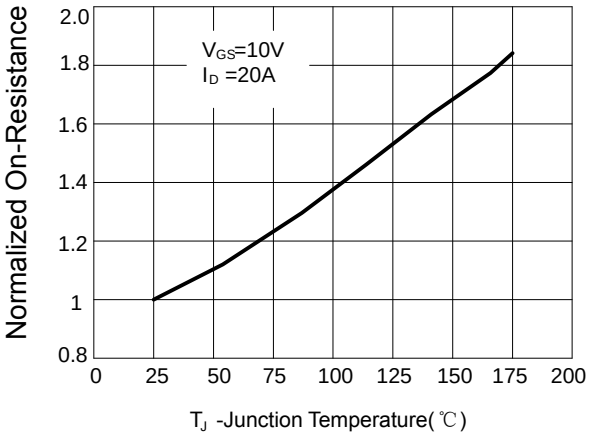


Figure 4:Rdson-junction temperature

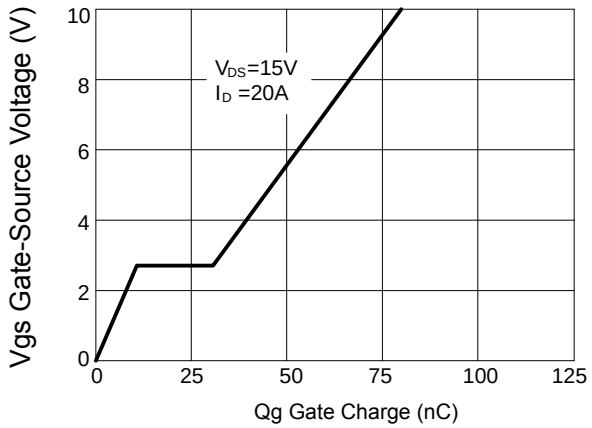


Figure 5:Gate charge

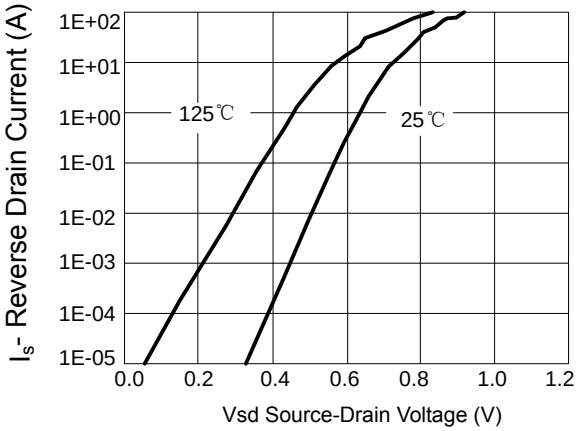


Figure 6:Source-drain diode forward

■ TYPICAL CHARACTERISTICS(Cont,)

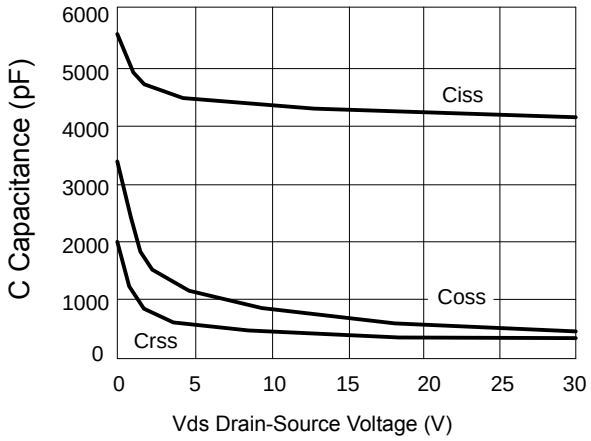


Figure 7:Capacitance vs vds

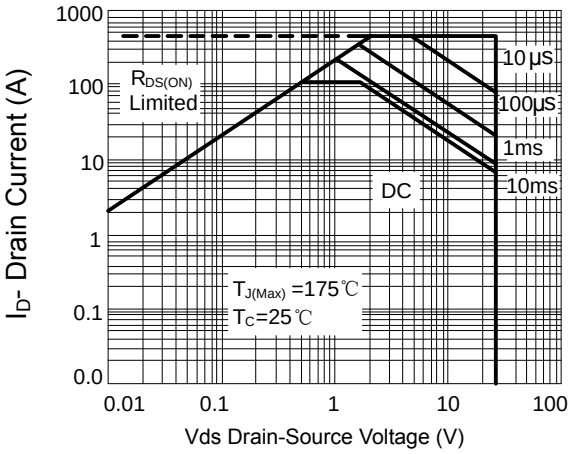


Figure 8:Safe operating area

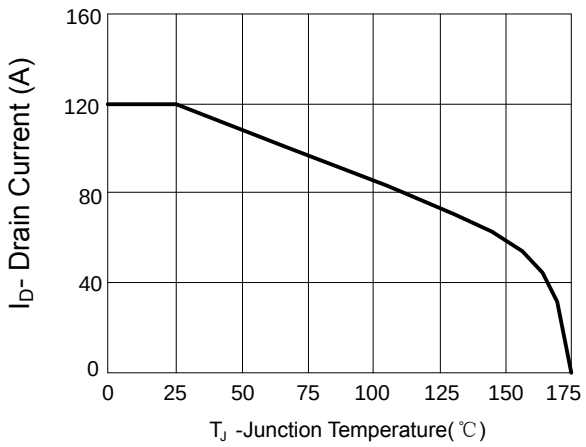


Figure 9:Current de-rating

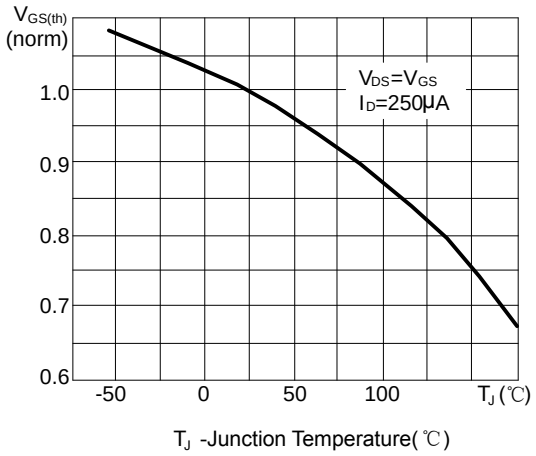
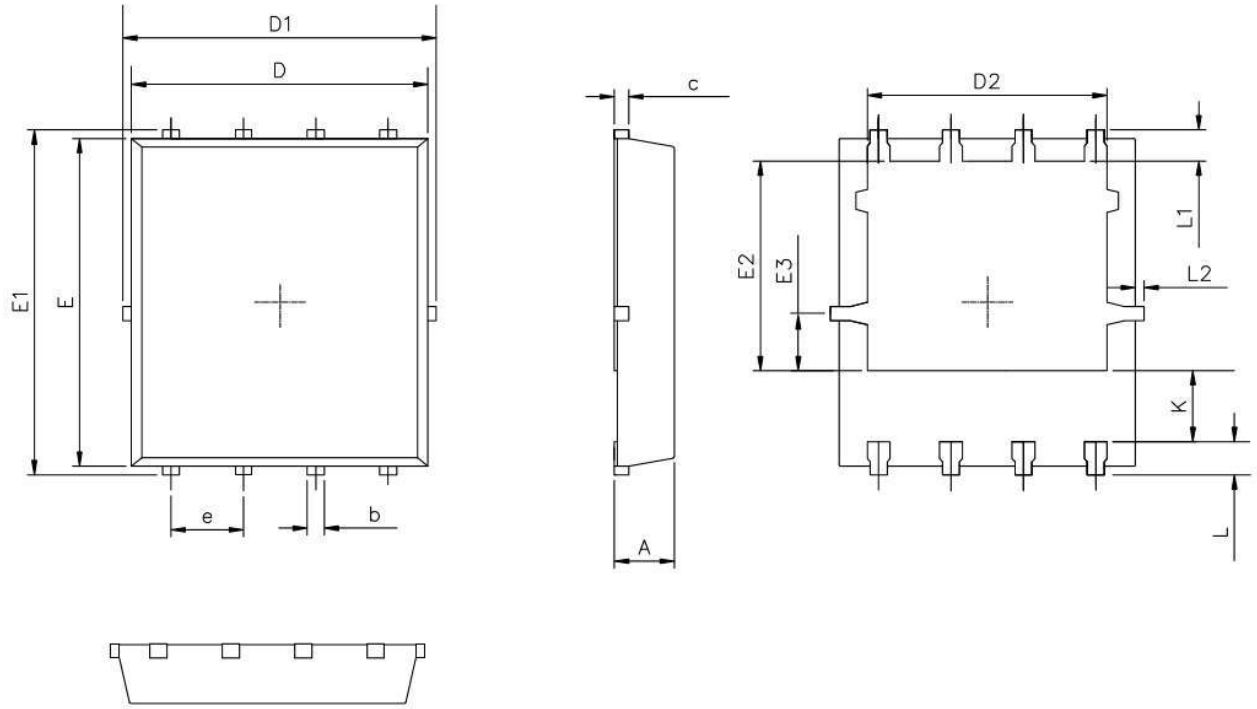


Figure 10:Vgs vs junction temperature

■ 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

RECOMMENDED LAND PATTERN