

■ PRODUCT CHARACTERISTICS

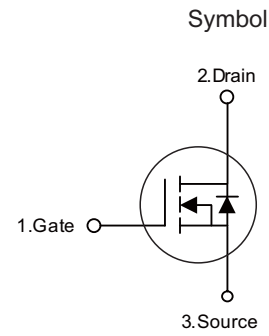
V _{DS}	60V
R _{DS(ON)Typ} (@V _{GS} =10V)	4.6mΩ
I _D	120A

■ FEATURES

- Load Switch
- PWM Application
- Power management

■ APPLICATION

- Advanced Trench Technology
- Provide Excellent R_{DS(ON)} and Low Gate Charge
- Lead free product is acquired



TO-220

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT120N06A	TO-220	50 pieces /Tube

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V _{DS}	60	V
Gate-to-Source Voltage	V _{GS}	±25	V
Continuous Drain Current	I _D	T _C = 25°C	120
		T _C = 100°C	78
Pulsed Drain Current	I _{DM}	480	A
Avalanche Energy	E _{AS}	400	mJ
Power Dissipation	P _D	181	W
Junction & Storage Temperature Range	T _J , T _{STG}	-55 to 175	°C
Thermal Resistance, Junction-to-Case	R _{θJC}	0.83	°C/W

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static parameter						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	I _D = 250μA, V _{GS} = 0V	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V	-	-	1.0	μA
		T _J = 55°C	-	-	5.0	μA
Gate-Body Leakage Current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±25V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2.0	-	4	V
Static Drain-Source ON-Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 30A	-	4.6	6	mΩ
Forward Transconductance	g _{FS}	V _{DS} = 5V, I _D = 20A	10	-	-	S
Diode Forward Voltage	V _{SD}	I _S = 1A, V _{GS} = 0V	-	-	1	V
Diode Continuous Current	I _S	T _C = 25°C	-	-	120	A
Dynamic parameter						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 25V, f = 1MHz	-	5672	-	pF
Output Capacitance	C _{oss}		-	392	-	pF
Reverse Transfer Capacitance	C _{rss}		-	352	-	pF
Switching parameter						
Total Gate Charge	Q _g	V _{GS} = 10V	-	103	-	nC
Gate Source Charge	Q _{gs}	V _{DS} = 30V, I _D = 30A	-	15	-	nC
Gate Drain Charge	Q _{gd}		-	32	-	nC
Turn-On DelayTime	t _{D(on)}		-	12	-	nS
Turn-On Rise Time	t _r	V _{GS} = 10V, V _{DS} = 30V I _D = 30A, R _G = 1.8Ω	-	8	-	nS
Turn-Off DelayTime	t _{D(off)}		-	49	-	nS
Turn-Off Fall Time	t _f		-	15	-	nS
Body Diode Reverse Recovery Time	t _{rr}		I _F = 30A, dI _F /dt = 100A/μS	-	27	-
Body Diode Reverse Recovery Charge	Q _{rr}	I _F = 30A, dI _F /dt = 100A/μS	-	48	-	nC

■ TYPICAL CHARACTERISTICS

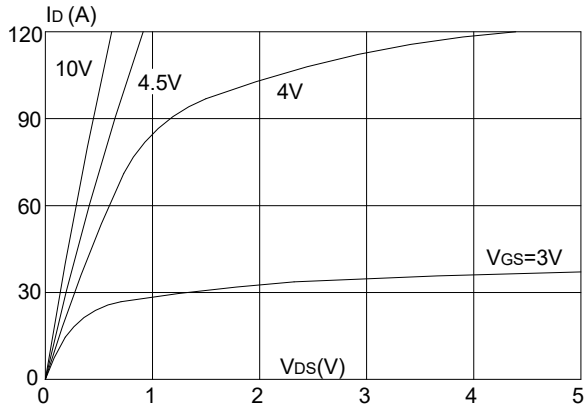


Figure 1 output characteristics

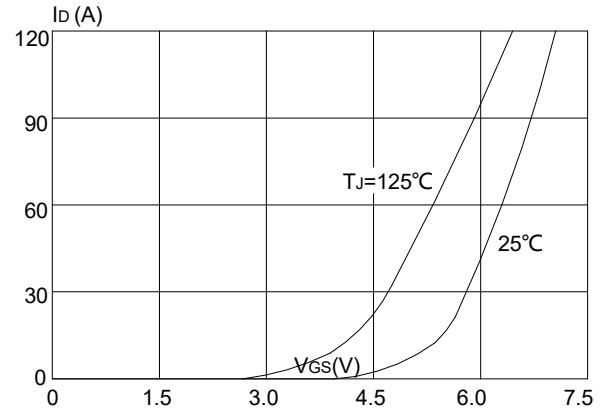


Figure 2 typical transfer characteristics

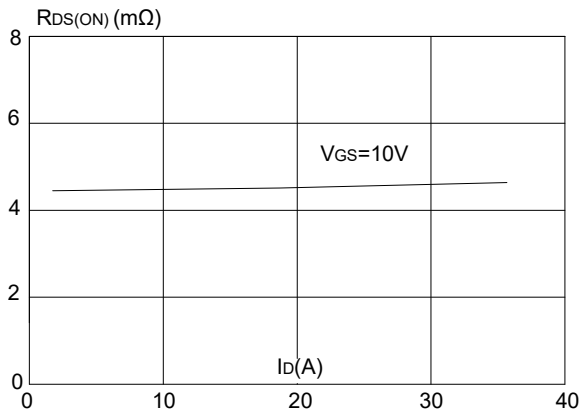


Figure 3 on-resistance vs. drain current

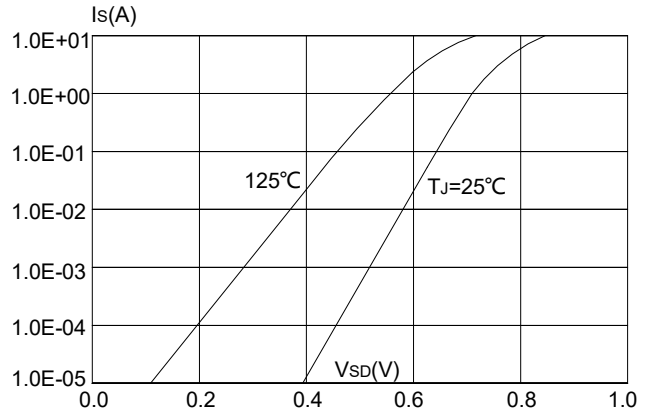


Figure 4 body diode characteristics

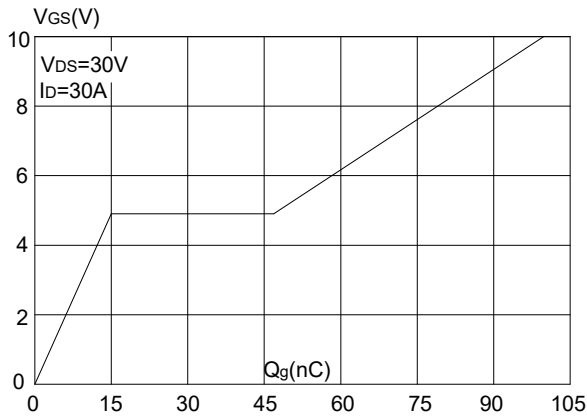


Figure 5 gate charge characteristics

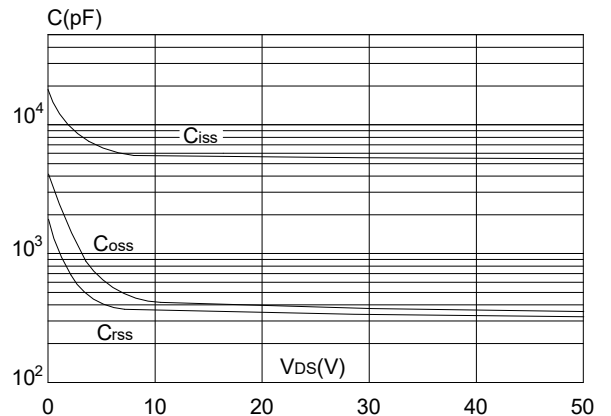


Figure 6 capacitance characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

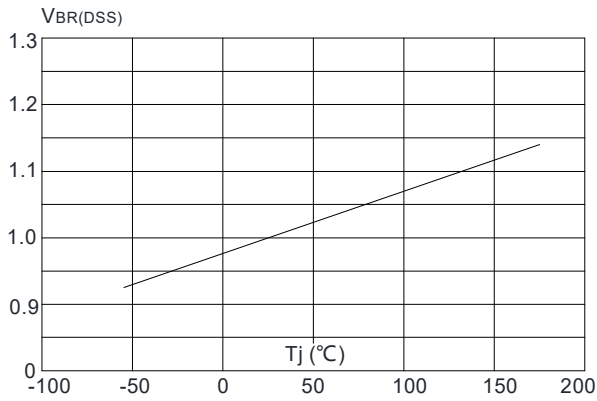


Figure 7 normalized breakdown voltage vs. junction temperature

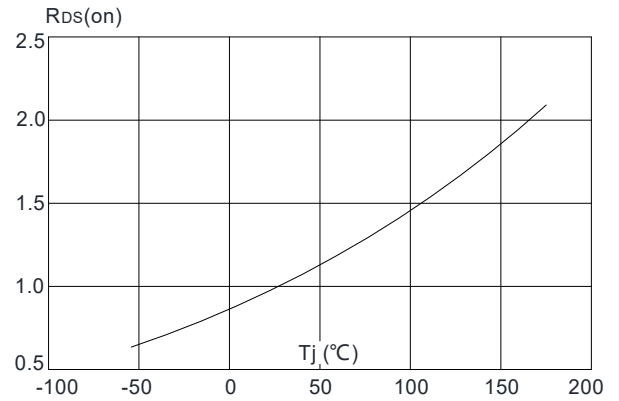


Figure 8 normalized on resistance vs. junction temperature

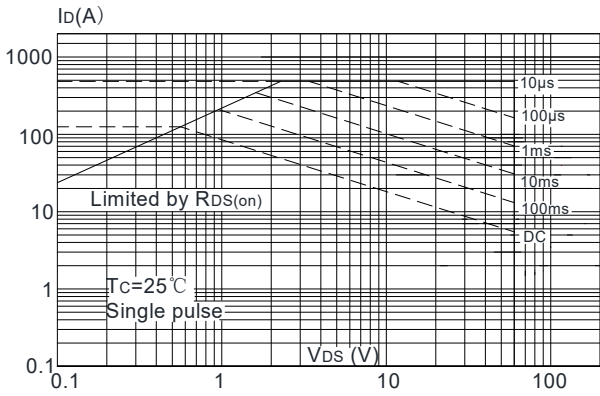


Figure 9 maximum safe operating area

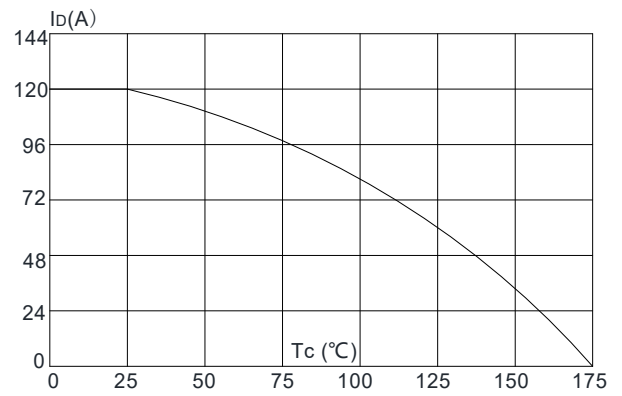


Figure 10 maximum continuous drain current vs. case temperature

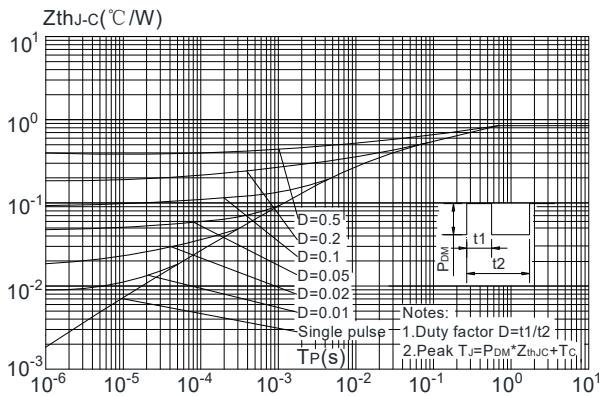


Figure 11 maximum effective transient impedance, junction to case

■ TO-220-3L PACKAGE OUTLINE DIMENSIONS

