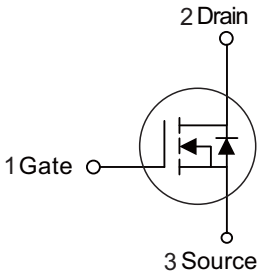
■ PRODUCT CHARACTERISTICS

VDSS	100V
R_{DS}(on)Typ(@V_{GS}=10 V)	20mΩ
R_{DS}(on)Typ(@V_{GS}=4.5V)	26mΩ
ID	30A

Symbol



■ APPLICATIONS

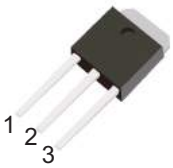
- Power Managerment in Telecom., Industrial Automation
- Current Switching in DC/DC & AC/DC (SR) Sub-systems
- Motor Driving In Power Tool,E-vehicle,Robotics

■ FEATURES

- Low Gate Charge
- High Current Capability
- 100% UIS Tested, 100% R_g Tested



TO-252



TO-251

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT30N10D	TO-252	2500 pieces /Reel
N/A	MOT30N10C	TO-251	70 pieces/Tube

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	30	A
Drain Current-Continuous(T_C=100℃)	I_D (100℃)	22	A
Pulsed Drain Current	I_{DM}	120	A
Maximum Power Dissipation	P_D	45	W
Derating factor		0.36	W/℃
Single pulse avalanche energy	E_{AS}	97	mJ
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃

■ THERMAL DATA

Parameter	Symbol	Value	Unit
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	2.78	°C/W

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

Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	100	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V,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	1.7	2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=15A	-	20	24	mΩ
		V_{GS}=4.5V, I_D=15A	-	26	30	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=15A	-	19	-	S
Dynamic characteristics						
Input Capacitance	C_{lss}	V_{DS}=50V,V_{GS}=0V, F=1.0MHz	-	1317.6	-	PF
Output Capacitance	C_{oss}		-	123.9	-	PF
Reverse Transfer Capacitance	C_{rss}		-	19.3	-	PF
Switching characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=50V,I_D=15A V_{GS}=10V,R_G=3Ω	-	13	-	nS
Turn-on Rise Time	t_r		-	15	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	22	-	nS
Turn-Off Fall Time	t_f		-	6	-	nS
Total Gate Charge	Q_g	V_{DS}=50V,I_D=15A, V_{GS}=10V	-	27.6	-	nC
Gate-Source Charge	Q_{gs}		-	5.5		nC
Gate-Drain Charge	Q_{gd}		-	6.9		nC
Drain-source diode characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=15A	-		1.2	V
Diode Forward Current	I_S		-	-	30	A
Reverse Recovery Time	t_{rr}	t T_J = 25°C, I_F = 15A	-	40	-	nS
Reverse Recovery Charge		Qrrdi/dt = 100A/μs(Note3)	-	85	-	nC

■ TYPICAL CHARACTERISTICS

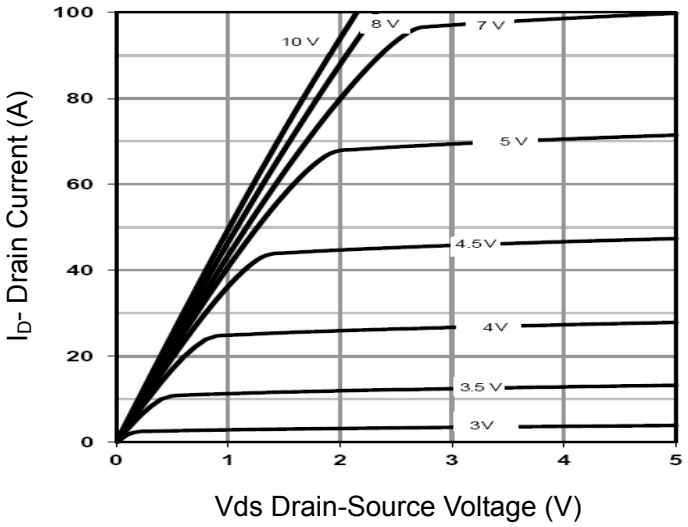


Figure 1 Output Characteristics

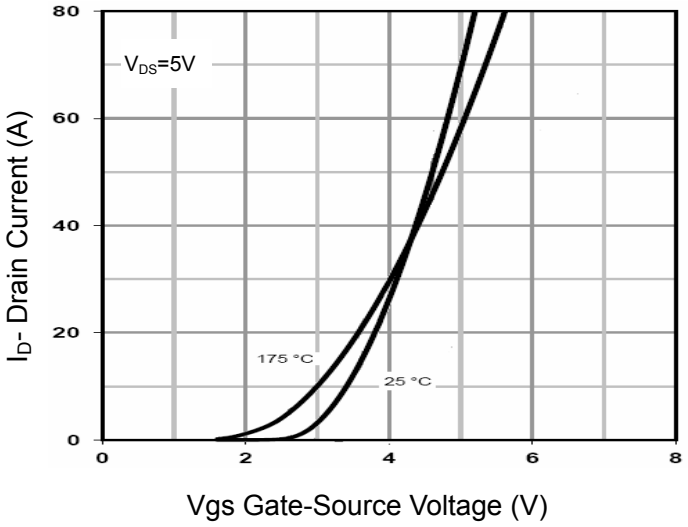


Figure 2 Transfer Characteristics

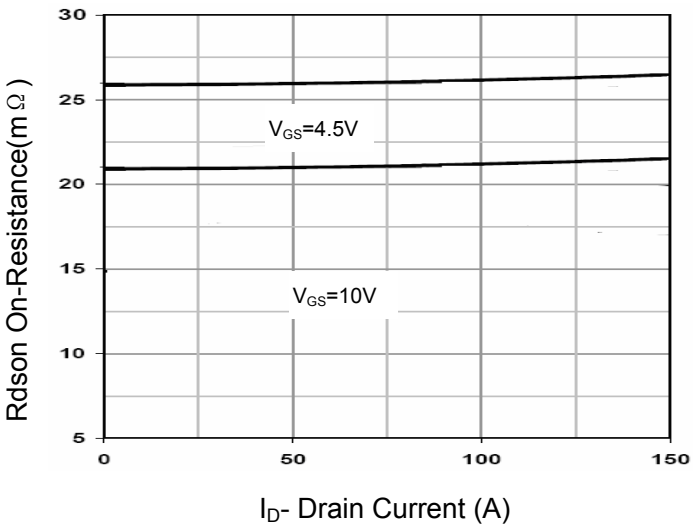


Figure 3 Rdson- Drain Current

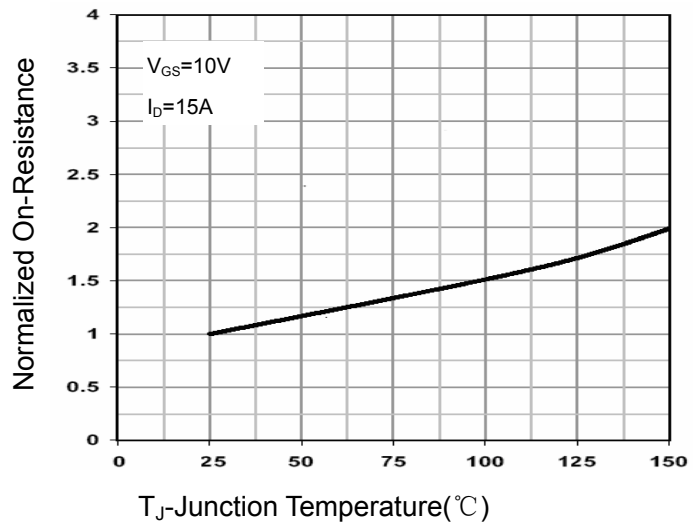


Figure 4 Rdson-Junction Temperature

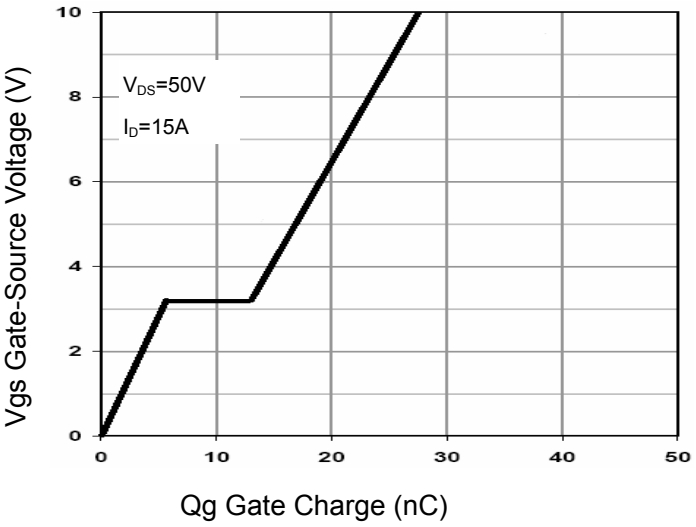


Figure 5 Gate Charge

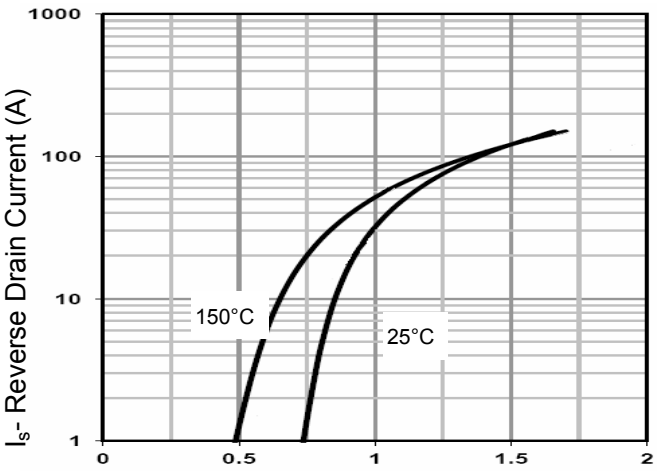


Figure 6 Source- Drain Diode Forward

■ TYPICAL CHARACTERISTICS(Cont.)

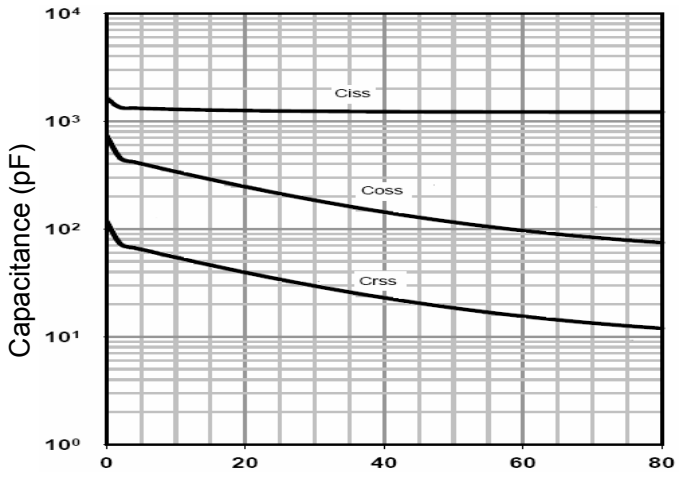


Figure 7 Capacitance vs Vds

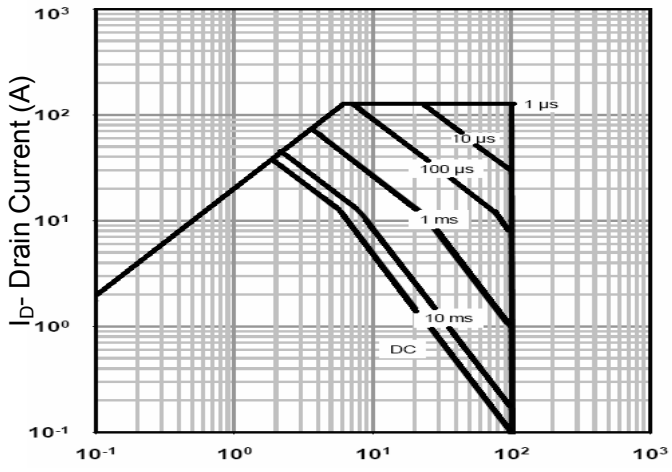


Figure 8 Safe Operation Area

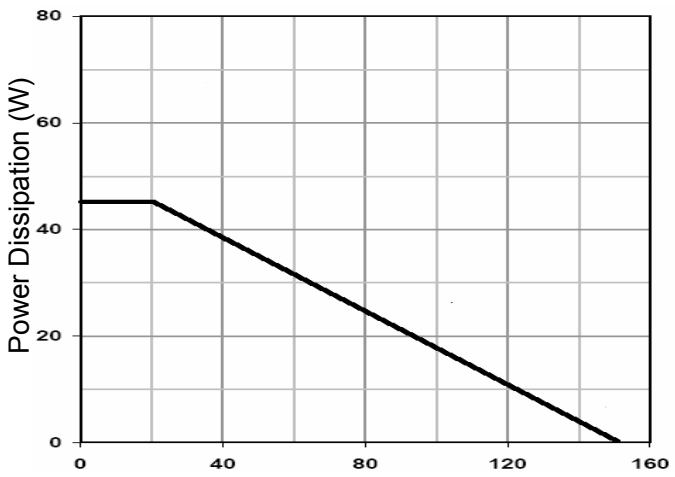


Figure 9 Power De-rating

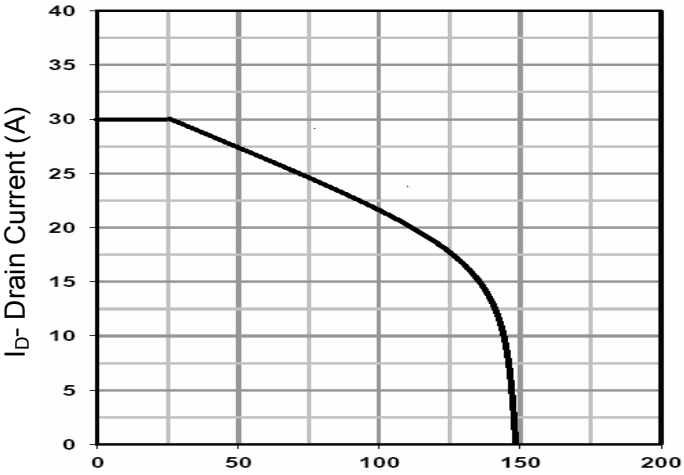


Figure 10 Current De-rating

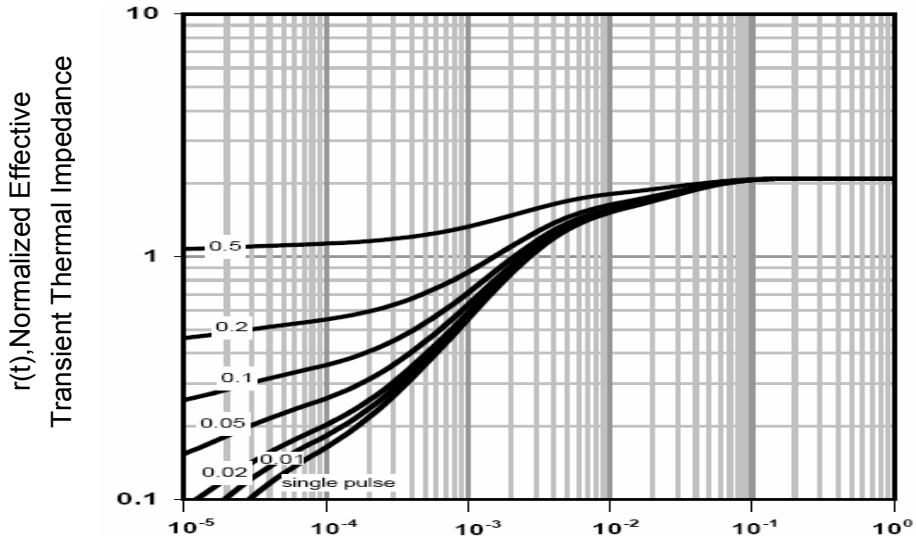
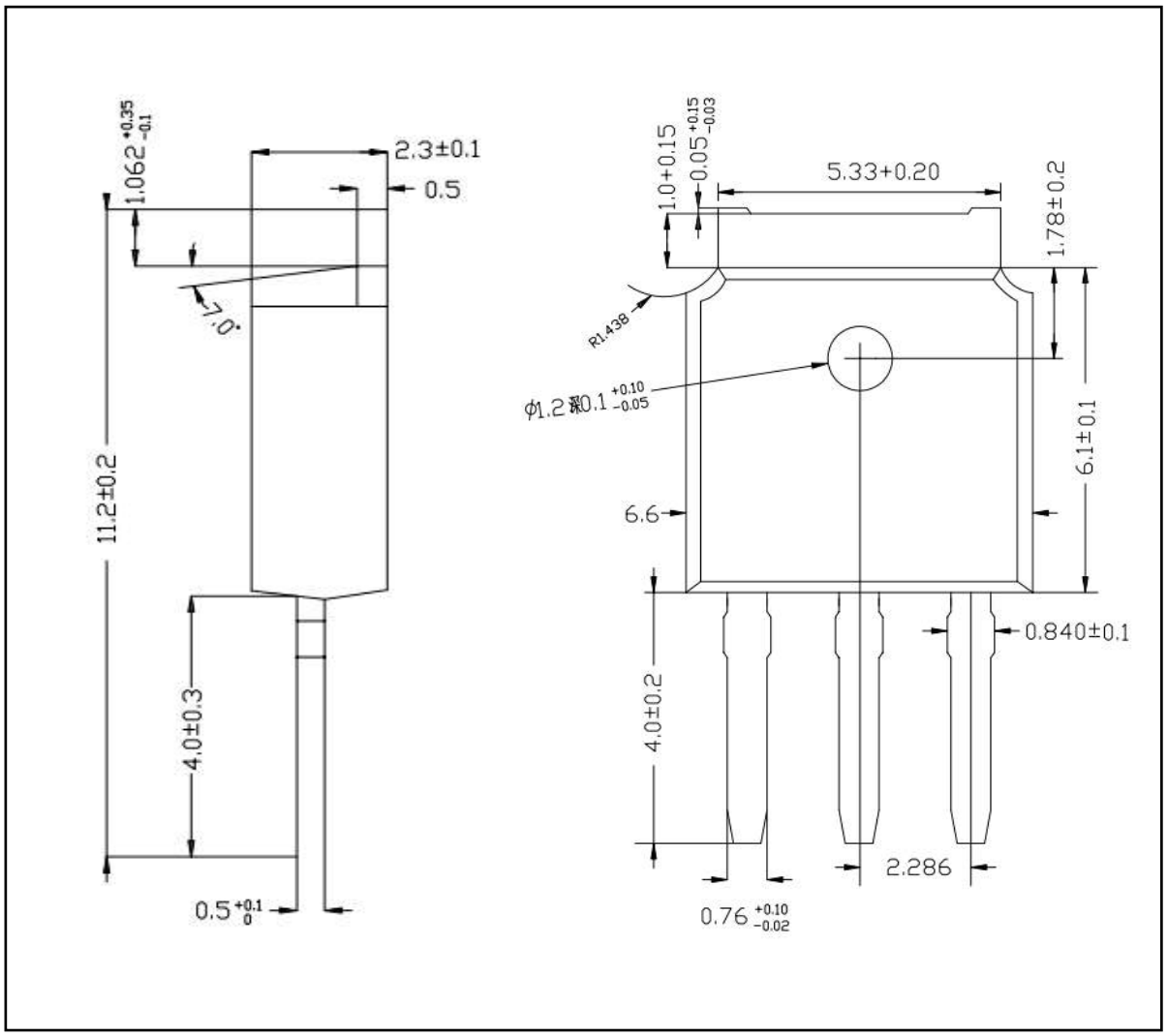


Figure 11 Normalized Maximum Transient Thermal Impedance

■ TO-251-3L PACKAGE OUTLINE DIMENSIONS



■ TO-252-2L PACKAGE OUTLINE DIMENSIONS

