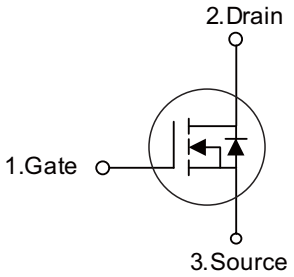
■ PRODUCT CHARACTERISTICS

VDSS	30V
R_{DS}(on)Typ(@V_{GS}=10 V)	6.5mΩ
R_{DS}(on)Typ(@V_{GS}=4.5 V)	10.5mΩ
ID	60A

Symbol



■ APPLICATIONS

* Switching applications

■ FEATURES

* Low capacitance
* Low gate charge
* Fast switching capability
* Avalanche energy specified



TO-252



TO-251

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT60N03D	TO-252	2500 pieces /Reel
N/A	MOT60N03C	TO-251	70 pieces/Tube

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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current (V_{GS}=10V)	I_D	60	A
Power Dissipation	P_D	45	W
Derate above 25°C		0.37	W/°C
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

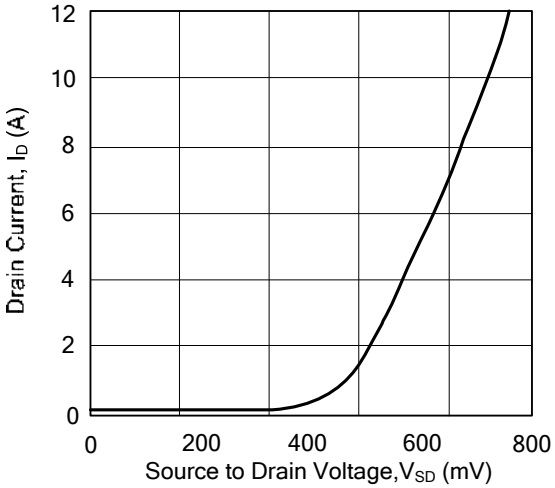
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	100	°C/W
Junction to Case	θ_{JC}	2.73	°C/W

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

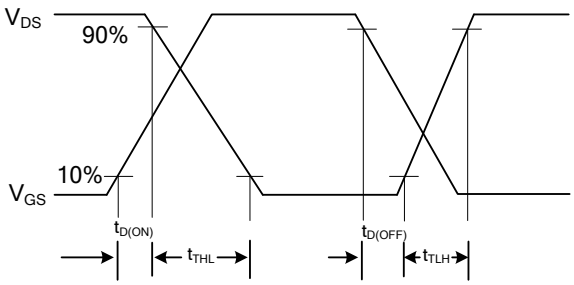
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Off characteristics							
Drain-Source Breakdown Voltage		BV_{DSS}	V_{GS}=0V, I_D=250μA	30	-	-	V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=25V, V_{GS}=0V	-	-	1	μA
Gate-Source Leakage Current		I_{GSS}	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
On characteristics							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	1	-	3	V
Static Drain-Source On-Resistance		$R_{DS(ON)}$	V_{GS}=10V, I_D=15A	-	6.5	9	mΩ
			V_{GS}=4.5V, I_D=10A	-	10.5	15	
Dynamic characteristics							
Input Capacitance		C_{ISS}	V_{DS}=15V, V_{GS}=0V, f=1MHz	-	900	-	pF
Output Capacitance		C_{OSS}		-	210	-	pF
Reverse Transfer Capacitance		C_{RSS}		-	90	-	pF
Switching characteristics							
Turn-ON Time		$t_{(ON)}$	V_{DD}=15V, I_D=7.9A, R_L=18Ω, V_{GS}=4.5V	-	90	-	ns
Turn-ON Delay Time		$t_{D(ON)}$		-	11	-	ns
Turn-ON Rise Time		t_R		-	49	-	ns
Turn-OFF Time		$t_{(OFF)}$		-	83	-	ns
Turn-OFF Delay Time		$t_{D(OFF)}$		-	27	-	ns
Turn-OFF Fall-Time		t_F		-	28	-	ns
Turn-ON Time		$t_{(ON)}$	V_{DD}=15V, I_D=7.9A, R_L=18Ω, V_{GS}=10V	-	48	-	ns
Turn-ON Delay Time		$t_{D(ON)}$		-	6	-	ns
Turn-ON Rise Time		t_R		-	26	-	ns
Turn-OFF Time		$t_{(OFF)}$		-	120	-	ns
Turn-OFF Delay Time		$t_{D(OFF)}$		-	52	-	ns
Turn-OFF Fall-Time		t_F		-	28	-	ns
Total Gate Charge	5V	Q_G	V_{GS}=0V~5V,V_{DD}=15V,I_D=19A I_G=1.0mA	-	18	-	nC
	10V		V_{GS}=0V~10V,V_{DD}=15V,I_D=19A,I_G=1.0mA	-	9.6	-	
Threshold Gate Charge		$Q_{G(TH)}$	V_{GS}=0V~1V,V_{DD}=15V,I_D=19A I_G=1.0mA	-	1.0	-	nC
Gate-Source Charge		Q_{GS}	V_{DD}=15V, I_D=19A I_G=1.0mA	-	3.4	-	nC
Gate-Drain Charge		Q_{GD}		-	3.4	-	nC
Source-drain diode ratings and characteristics							
Drain-Source Diode Forward Voltage		V_{SD}	I_{SD}=19A	-	-	1.25	V
			I_{SD}=10A	-	-	1.0	
Reverse Recovery Time		t_{rr}	I_{SD}=9A, dI_S/dt =100A/s,	-	-	58	ns
Reverse Recovery Charge		Q_{RR}		-	-	70	nC

■ TYPICAL CHARACTERISTICS

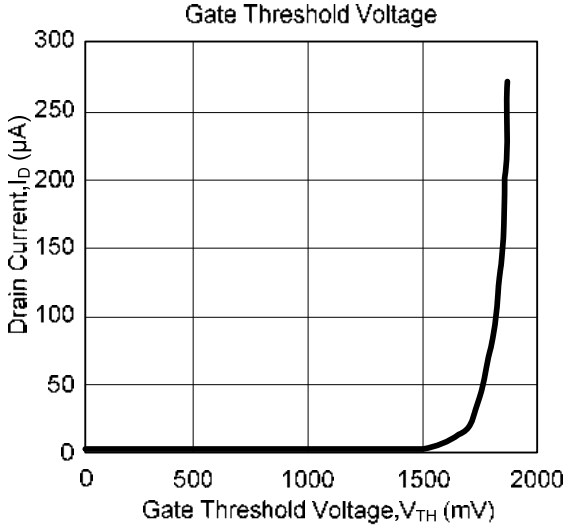
Drain Current vs. Source to Drain Voltage



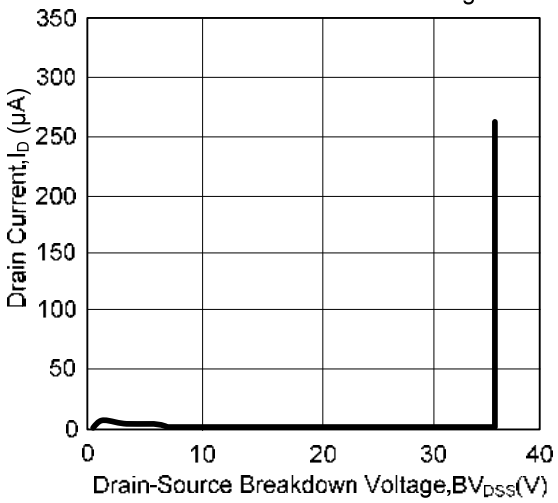
Switching Time Waveforms



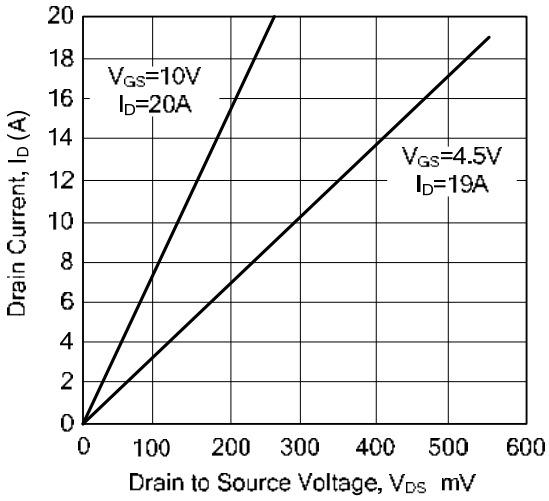
Drain Current vs.
Gate Threshold Voltage



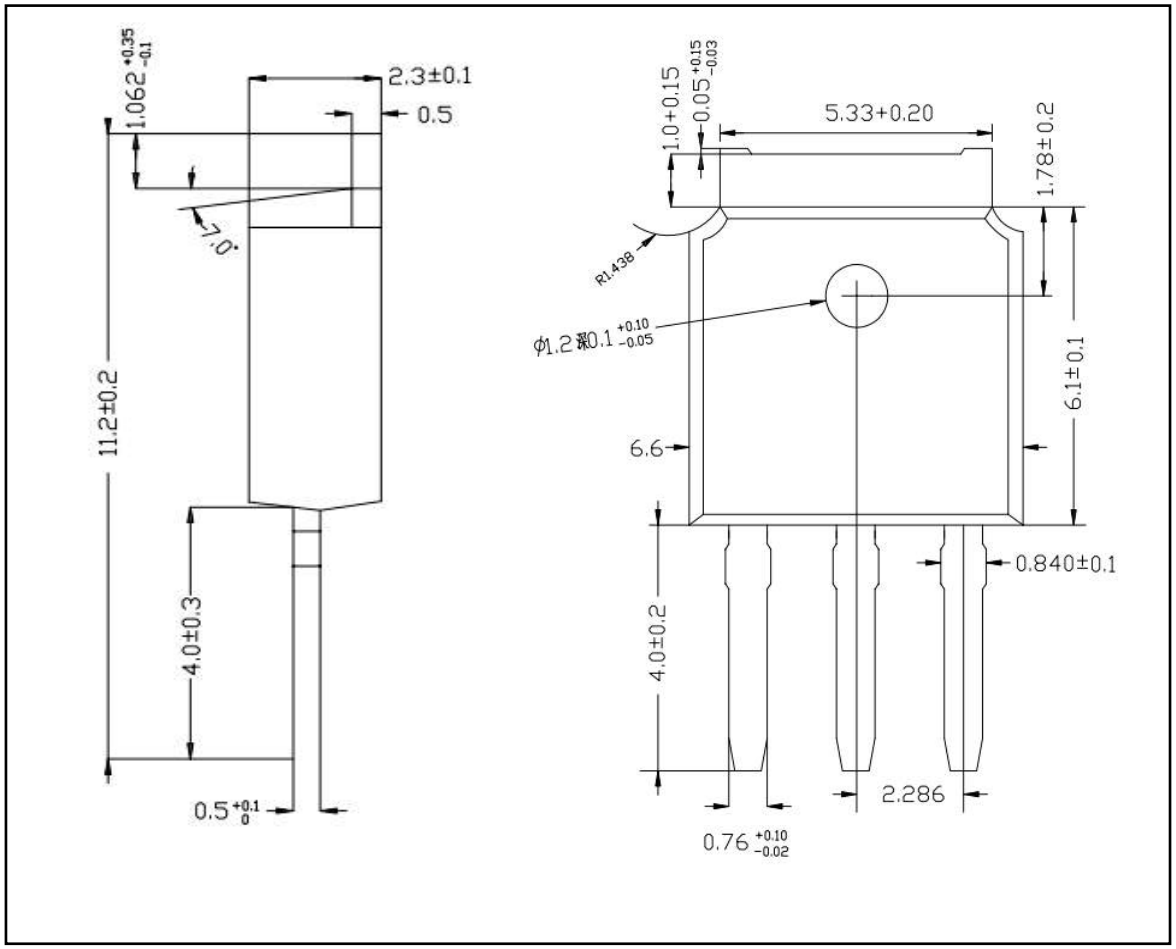
Drain Current vs.
Drain-Source Breakdown Voltage



Drain-Source On-State
Resistance Characteristics



■ TO-251PACKAGE OUTLINE DIMENSIONS



■ TO-252 PACKAGE OUTLINE DIMENSIONS

