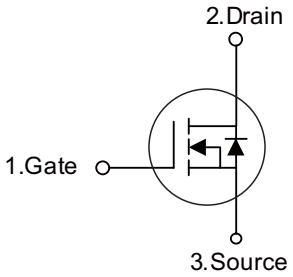
■ PRODUCT CHARACTERISTICS

VDSS	20V
R_{DS}(on)Typ(@V_{GS}=10 V)	7mΩ
R_{DS}(on)Typ(@V_{GS}=4.5 V)	12mΩ
ID	50A

Symbol

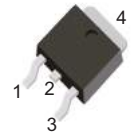


■ APPLICATIONS

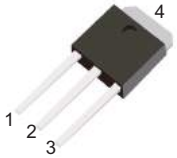
* Switching applications

■ 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	MOT50N02D	TO-252	2500 pieces /Reel
N/A	MOT50N02C	TO-251	70 pieces/Tube

■ ORDER INFORMATION

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	20	V
Gate-Source Voltage	V_{GSS}	±12	V
Continuous Drain Current	I_D	50	A
Pulsed Drain Current	I_{DM}	90	A
Avalanche Current	I_{AR}	30	A
Repetitive avalanche energy L=0.1mH	E_{AR}	135	mJ
Power Dissipation	P_D	50	W
Junction Temperature	T_J	+175	℃
Storage Temperature	T_{STG}	-55 ~ +175	℃

Note: 1. 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.
2. Pulse width limited by $T_{J(MAX)}$

■ THERMAL DATA

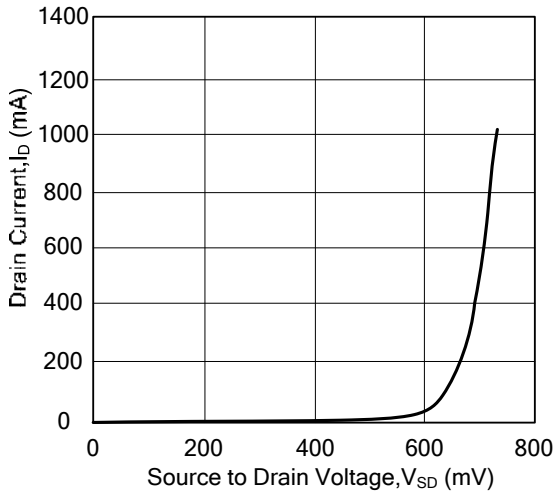
PARAMETER	SYMBOL	RATINGS	UNIT
Junction-to-Ambient	θ_{JA}	50	℃/W
Junction-to-Case	θ_{JC}	3	℃/W

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

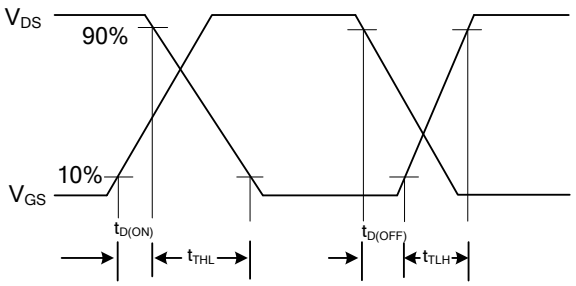
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	V_{GS}=0V, I_D=250uA	20	-	-	V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=20V, V_{GS}=0V	-	-	1	μA
Gate-Source Leakage Current		I_{GSS}	V_{DS}=0V, V_{GS}=±12V	-	-	100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250uA	0.4	0.7	1.1	V
On State Drain Current		$I_{D(ON)}$	V_{DS}=5V, V_{GS}=10V	100	-	-	A
Static Drain-Source On-Resistance		$R_{DS(ON)}$	V_{GS}=10V, I_D=20A	-	7	8	mΩ
			V_{GS}=4.5V, I_D=20A	-	12	13	
Forward Transconductance		g_{FS}	V_{DS}=5V, I_D=10A	-	35	-	S
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{DS}=10V, V_{GS}=0V, f=1MHz	-	1230	-	pF
Output Capacitance		C_{OSS}		-	315	-	pF
Reverse Transfer Capacitance		C_{RSS}		-	190	-	pF
SWITCHING PARAMETERS							
Total Gate Charge	10V	Q_G	V_{DS}=10V, V_{GS}=10V, I_D=20A	-	26.4	-	nC
	4.5V			-	13.5	-	
Gate Source Charge		Q_{GS}		-	3.9	-	nC
Gate Drain Charge		Q_{GD}		-	7.75	-	nC
Turn-ON Delay Time		$t_{D(ON)}$	V_{GS}=10V, V_{DS}=10V, R_L=0.6Ω, R_G=3Ω	-	6.5	-	ns
Turn-ON Rise Time		t_R		-	10	-	ns
Turn-OFF Delay Time		$t_{D(OFF)}$		-	22.7	-	ns
Turn-OFF Fall-Time		t_F		-	6.2	-	ns

■ TYPICAL CHARACTERISTICS

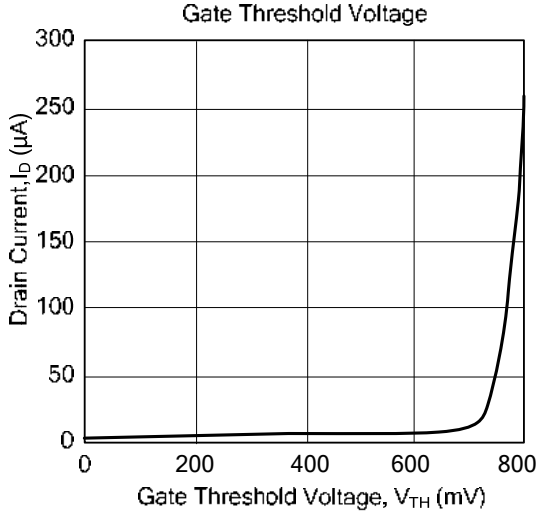
Drain Current vs. Source to Drain Voltage



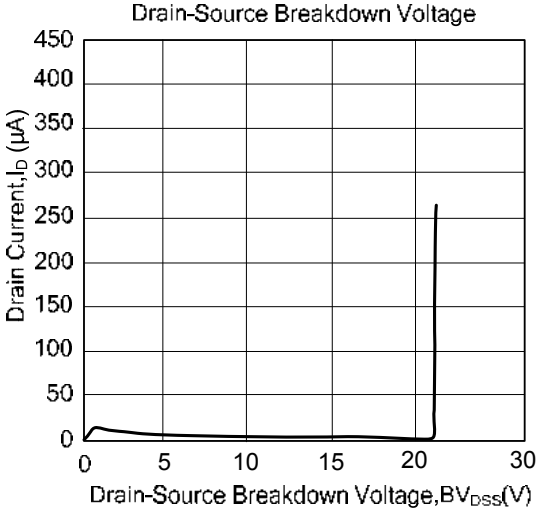
Switching Time Waveforms



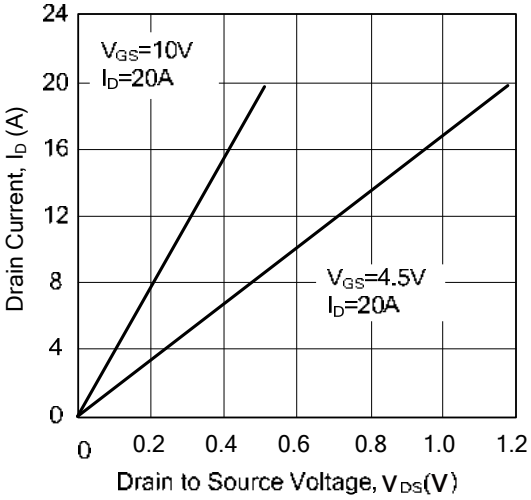
Drain Current vs.
Gate Threshold Voltage



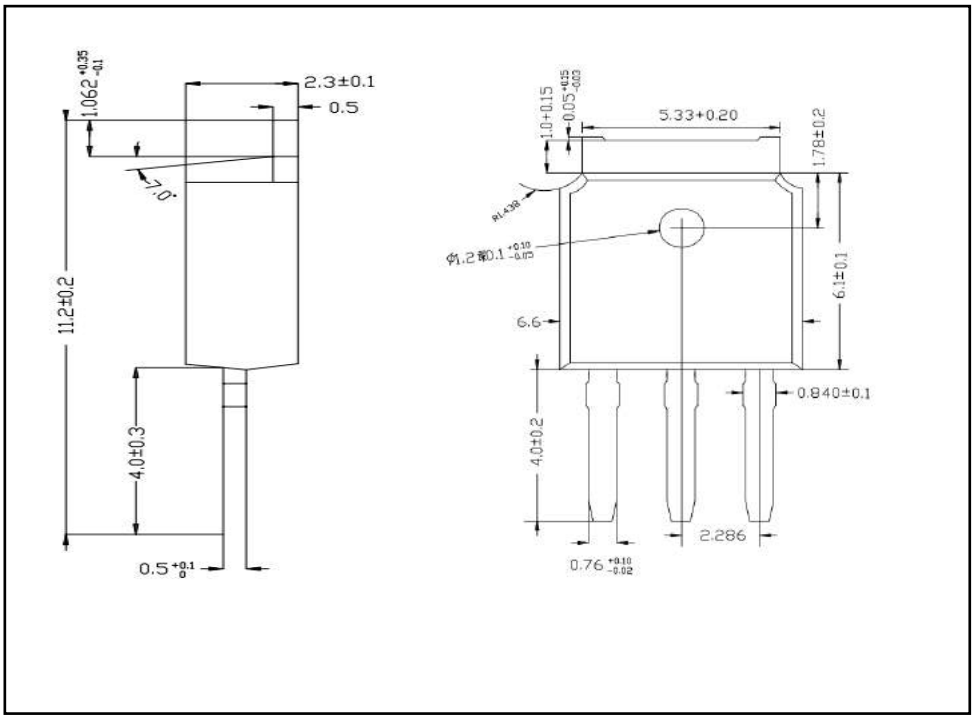
Drain Current vs.
Drain-Source Breakdown Voltage



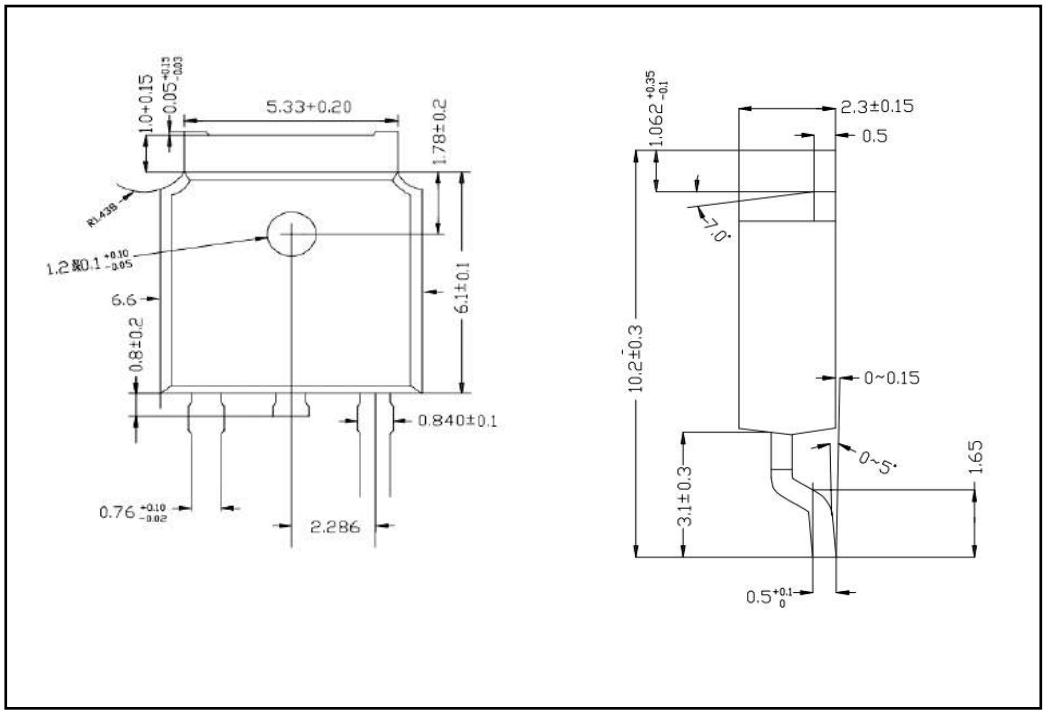
Drain-Source On-State
Resistance Characteristics



■ TO-251 PACKAGE OUTLINE DIMENSIONS



■ TO-252 PACKAGE OUTLINE DIMENSIONS



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