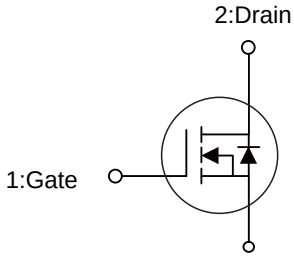
■ PRODUCT CHARACTERISTICS

V_{DSS}	75V
$R_{DS(ON)}$Typ(@V_{GS}=10V)	9mΩ
Qg@typ	84nC
I_D	75A

Symbol



■ APPLICATIONS

* High efficiency switch mode power supplies
* Electronic lamp ballasts based on half bridge
* LED power supplies

TO-252

■ FEATURE

* High Switching Speed
* Improved dv/dt capability

■ ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT75N75D	TO-252	2500 pieces/Reel

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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	75	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current Continuous(@V_{GS}=10V ,T_A=25°C)	I_D	75	A
Drain Current Pulsed	I_{DM}	300	A
Avalanche Energy *	E_{AS}	476	mJ
Peak Diode Recovery dv/dt	dv/dt	4.8	V/ns
Power Dissipation	P_D	115	W
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

■ THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Ambient	R_{thJA}	100	°C/W
Junction to Case	R_{thJC}	1.07	°C/W

Note: * EAS condition: T_J=25°C ,V_{DD}=30V,V_G=10V ,L=0.5mH,R_g =25Ω

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V_{DSS}	V_{GS}=0V,I_D=250μA	75	-	-	V
Drain to Source Leakage Current	I_{DSS}	V_{DS}=75V,V_{GS}=0V	-	-	1	μA
Gate to Source Forward Leakage	$I_{GSS(F)}$	V_{DS}=0V, V_{GS}=+20V	-	-	100	nA
Gate to Source Reverse Leakage	$I_{GSS(R)}$	V_{DS}=0V, V_{GS}=-20V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=20A	-	9	11	mΩ
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS},I_D=250μA	2	2.6	4	V
Dynamic characteristics						
Gate capacitance	R_g	V_{GS}=0V,V_{DS}=0V ,f=1.0MHz	-	1.3	-	Ω
Forward Transconductance	g_{fs}	V_{DS}=10V,I_D=2A	-	11	-	S
Input Capacitance	C_{iss}	V_{DS}=30V,V_{GS}=0V f=1.0MHz	-	4400	-	pF
Output Capacitance	C_{oss}		-	292	-	pF
Reverse Transfer Capacitance	C_{rss}		-	185	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	$t_{d(ON)}$	I_D=30 A, V_{DS}=37.5V R_G=25Ω ,V_{GS}=10V	-	22	-	ns
Rise Time	t_r		-	21	-	ns
Turn-off Delay Time	$t_{d(OFF)}$		-	48	-	ns
Fall Time	t_f		-	18	-	ns
Total Gate Charge	Q_g	I_D=30 A, V_{DS}=37.5V V_{GS}=10V	-	84	-	nC
Gate to Source Charge	Q_{gs}		-	20	-	nC
Gate to Drain("Miller") Charge	Q_{gd}		-	22	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I_S		-	-	75	A
Maximum Pulsed Current(Body Diode)	I_{SM}		-	-	300	A
Diode Forward Voltage	V_{SD}	I_{SD}=1A, V_{GS}=0V	-	0.67	1.2	V
Reverse Recovery Time	t_{rr}	I_{SD} =30 A, T_J=25 °C dI/dt=100A/μs	-	100	-	ns
Reverse Recovery Charge	Q_{rr}		-	0.65	-	μC

■ TYPICAL CHARACTERISTICS

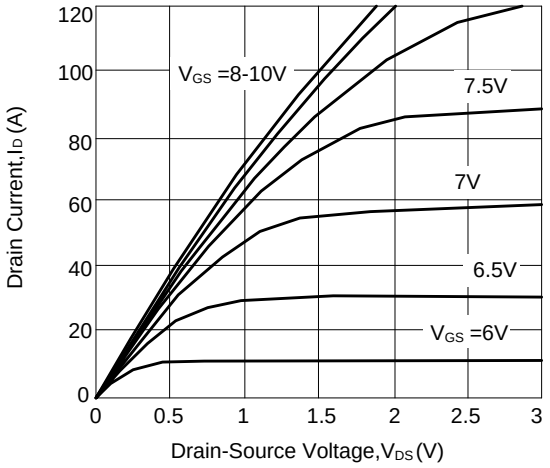


Figure 1: Drain Current vs. Drain-Source Voltage

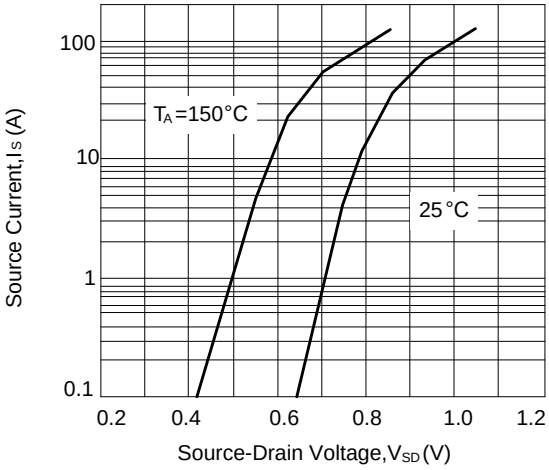


Figure 2: Source Current vs, Source-Drain Voltage

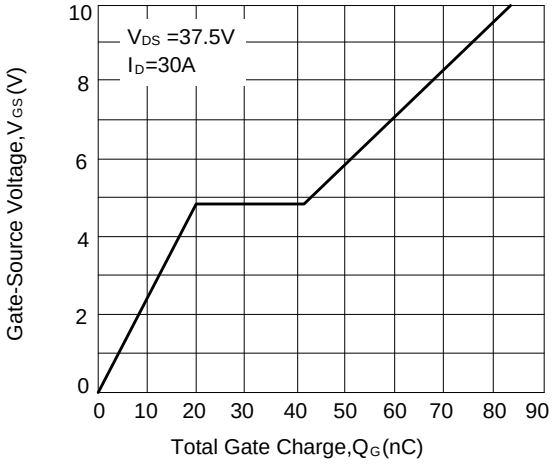


Figure 3: Gate Charge Characteristics

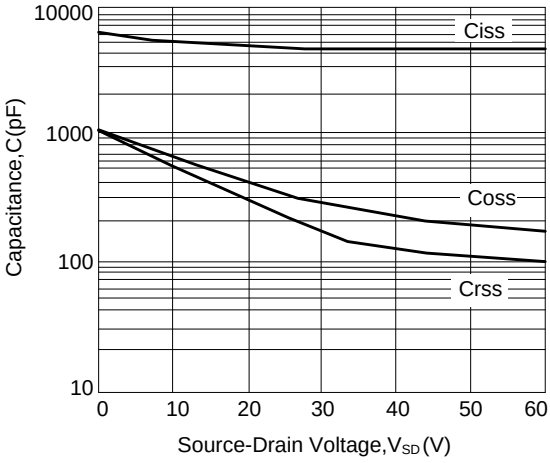


Figure 4: Capacitance Characteristics

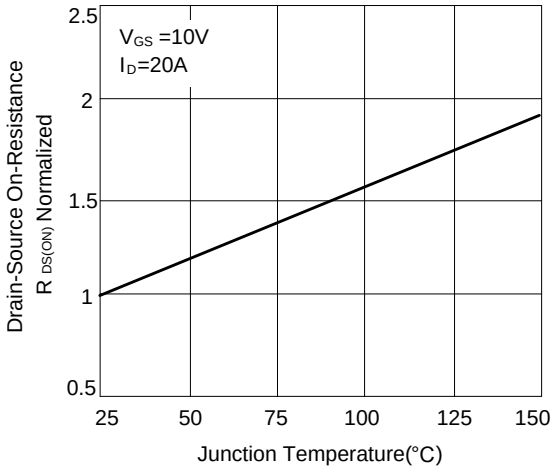


Figure 5: Drain-Source On-Resistance vs. Junction Temperature

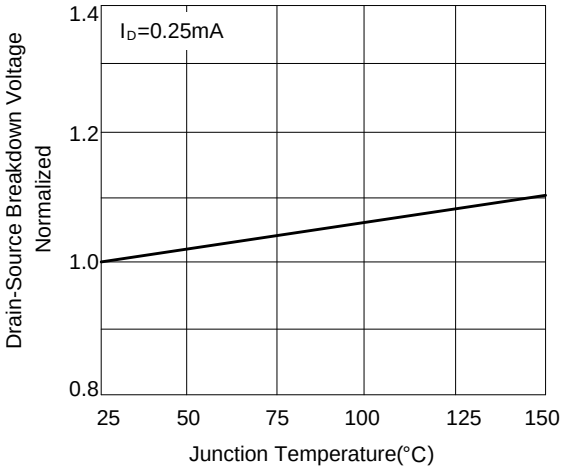


Figure 6: Breakdown Voltage vs. Juction Temperature

■ TYPICAL CHARACTERISTICS(Cont.)

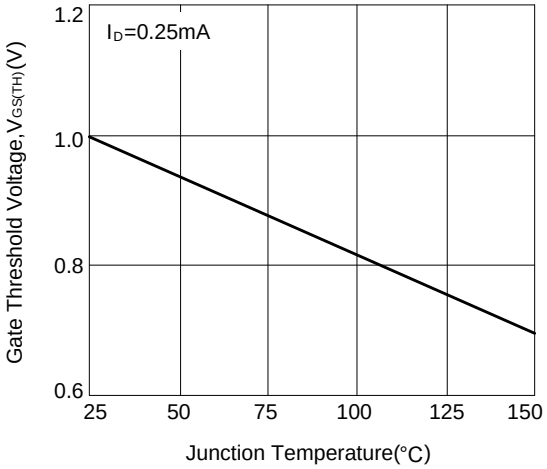


Figure 7: Gate Threshold Voltage vs. Junction Temperature

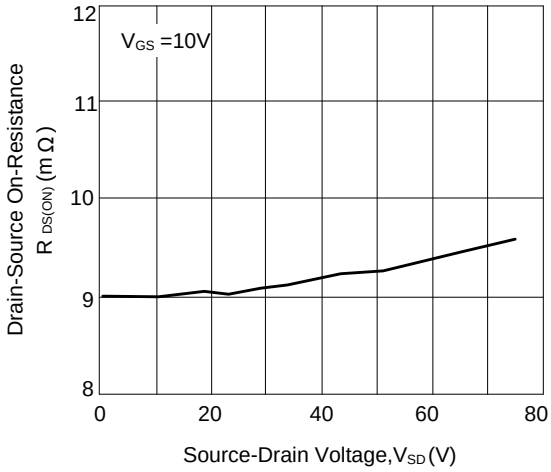


Figure 8: Drain-Source On-Resistance vs. Drain Current

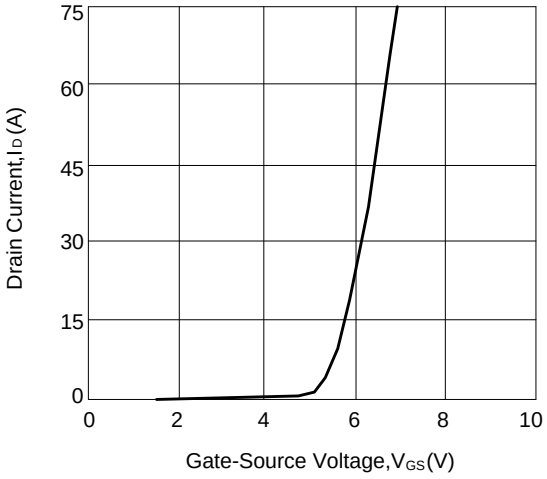


Figure 9: Drain Current vs. Gate-Source Voltage

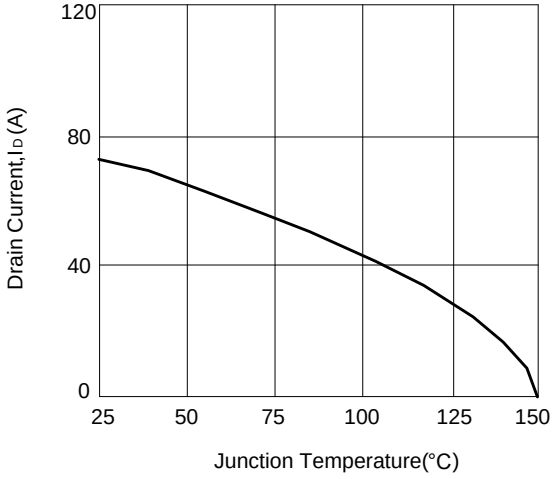


Figure 10: Drain-Current vs.Junction Temperature

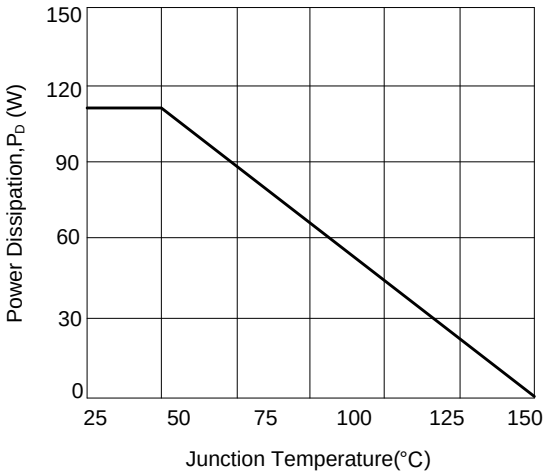


Figure 11: Power Dissipation vs. Junction Temperature

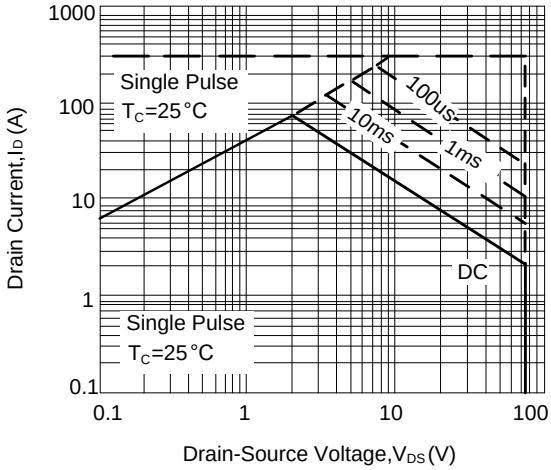


Figure 12: Safe Operating Area

■ TO-252 PACKAGE OUTLINE DIMENSIONS