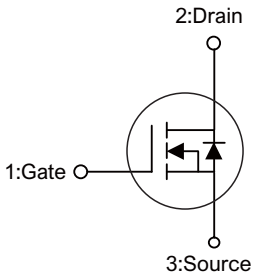
Symbol



■ PRODUCT CHARACTERISTICS

V_{DSS}	700V
$R_{DS(ON)}$Typ(@V_{GS} =10V)	0.35Ω
I_D	11A

■ APPLICATIONS

* PFC power supply stages
* Switching applications
* Adapter
* Motor control
* DC-DC converters

TO-252

■ FEATURES

*Low power loss by high speed switching and low resistance

*100% avalanche tested

*Green package-Pb free plating,halogen free

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT70R380D	TO-252	2500 pieces /Reel

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

Parameter		Symbol	Ratings	Unit
Drain-to-source voltage		V_{DSS}	700	V
Gate-to-source voltage		V_{GSS}	±30	V
Continuous drain	T_C=25°C	I_D	11	A
	T_C=100°C	I_D	7	A
Pulsed drain current		I_{DM}	33	A
Avalanche energy		E_{AS}	263	mJ
Power dissipation		P_D	76	W
Junction & storage temperature range		T_J,T_{STG}	~55 to +150	°C

■ THERMAL PERFORMANCE

Parameter	Symbol	Ratings	Unit
Thermal resistance, Junction-to-ambient	$R_{\theta JA}$	62.5	°C/W
Thermal resistance, Junction-to-case	$R_{\theta JC}$	1.64	°C/W

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250uA	700	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=700V,V_{GS}=0V	-	-	1	uA
		T_J=55°C	-	-	5	uA
Gate-body leakage current	I_{GSS}	V_{GS}=±30V, V_{DS}=0V	-	-	±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS} ,I_D=250uA	2	-	4	V
Static drain-source on-resistance	$V_{GS(th)}$	V_{GS}=10V,I_D=3.2A	-	0.35	0.38	Ω
Diode forward voltage	V_{SD}	I_S=11A,V_{GS}=0V	-	-	1.4	V
Diode continuous current	I_S	T_C=25°C	-	-	11	A
DYNAMIC PARAMETERS						
Input capacitance	C_{ISS}	V_{GS}=0V,V_{DS}= 25V, f=1MHz	-	1061	-	pF
Ouput capacitance	C_{OSS}		-	823	-	pF
Reverse transfer capacitance	C_{rss}		-	50	-	pF
SWITCHING PARAMETERS						
Total charge	Q_g	V_{GS}=10V V_{DS}=560V,I_D=11A	-	34	-	nC
Gate source charge	Q_{gs}		-	6.7	-	nC
Gate drain charge	Q_{gd}		-	22.4	-	nC
Turn-on delay time	$t_{D(on)}$	V_{GS}=10V, V_{DS}=350V R_G=25Ω ,I_D=11A	-	20	-	nS
Turn-on rise time	t_r		-	38	-	nS
Turn-off delay time	$t_{D(off)}$		-	10	-	nS
Turn-off fall time	t_f		-	38	-	nS
Body-diode reverse recovery time	t_{rr}	I_F=11A, dI_F/dt=100A/us	-	385	-	nS
Body-diode reverse recovery charge	Q_{rr}	I_F=11A, dI_F/dt=100A/us	-	4.8	-	nC

■ TYPICAL CHARACTERISTICS

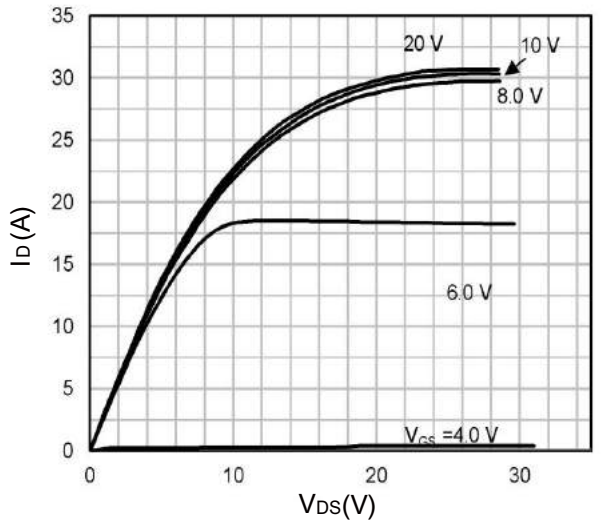


Figure1: on-region characteristics

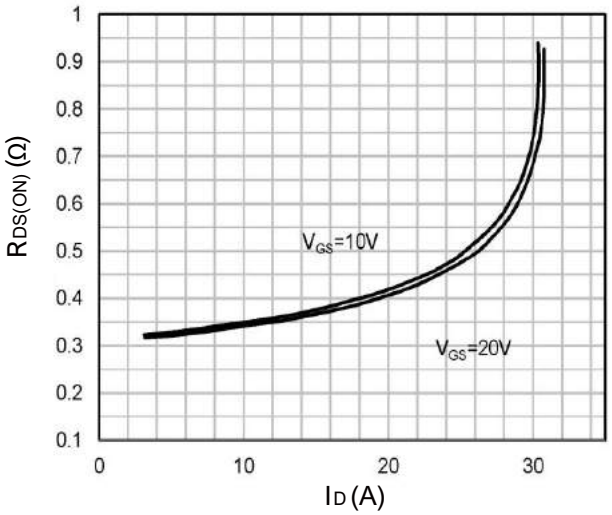


Figure2: on-resistance variation with drain current and gate voltage

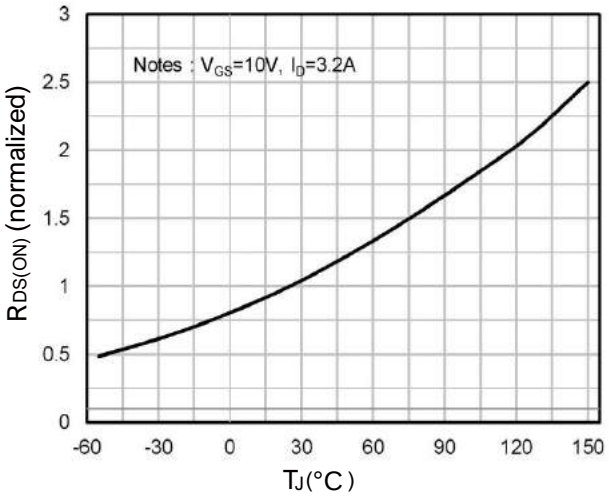


Figure3: on-resistance variation with temprature

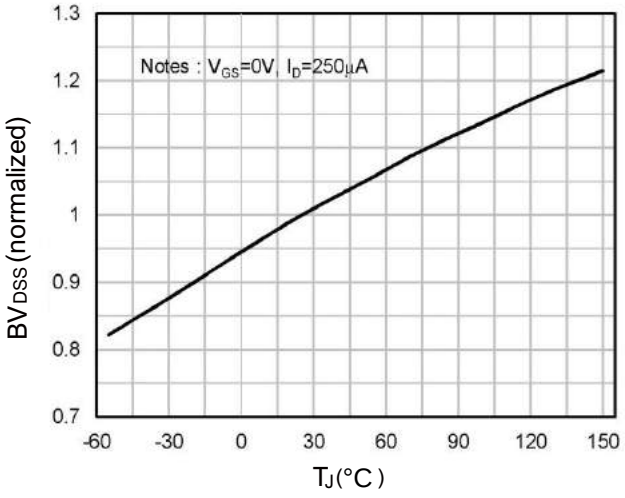


Figure4: breakdown voltage vs.temperature

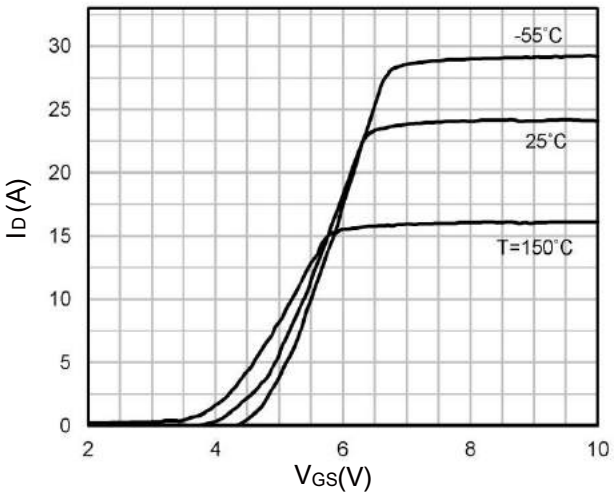


Figure5: transfer characteristics

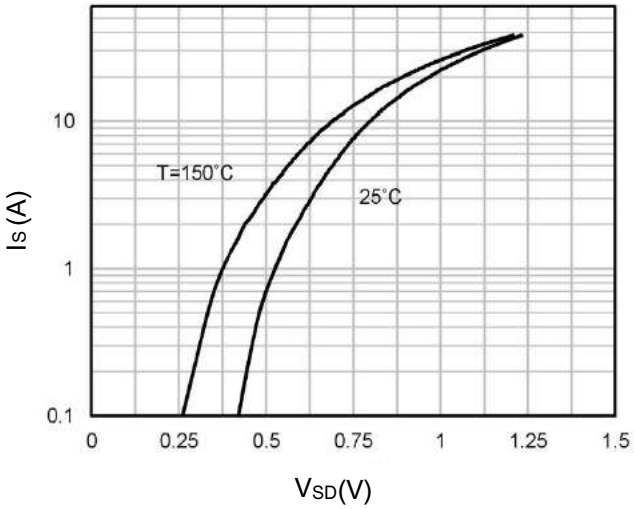


Figure6: body diode-forward voltage variation with source current and temperature

■ TYPICAL CHARACTERISTICS(Cont.)

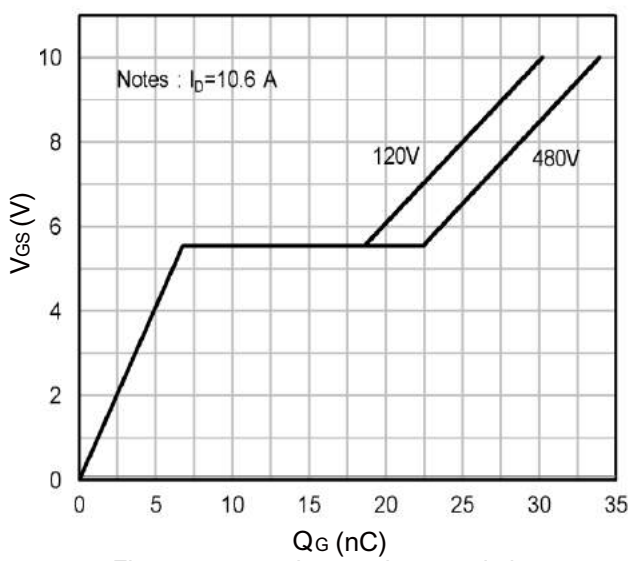


Figure 7: gate charge characteristics

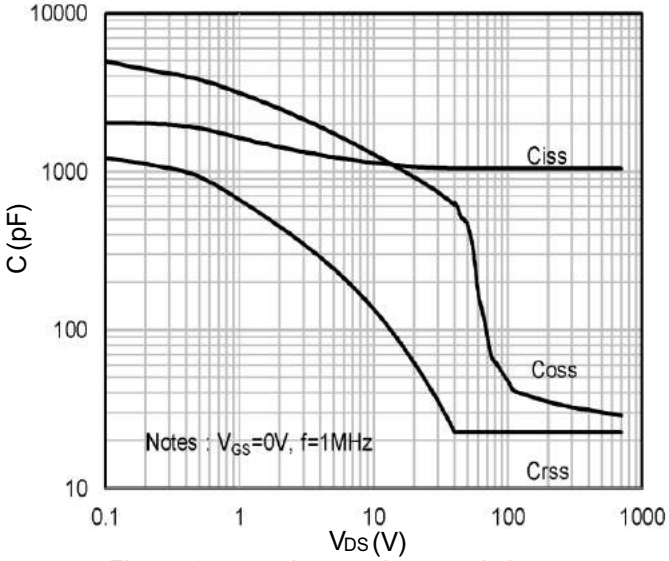


Figure 8: capacitance characteristics

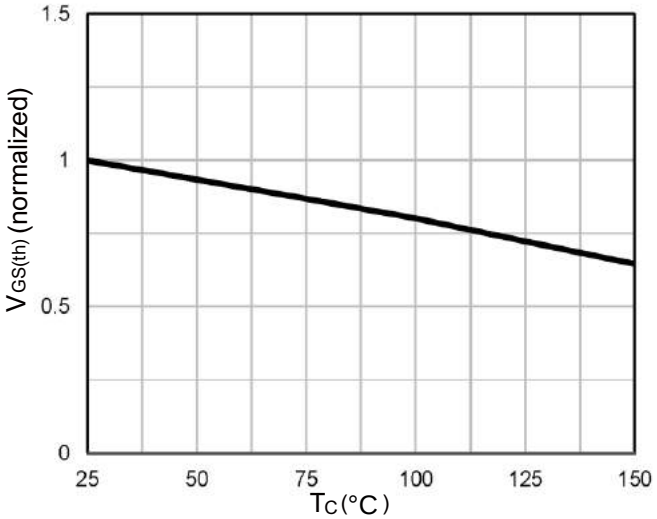


Figure 9: $V_{GS(th)}$ variation with temperature(nomalized)

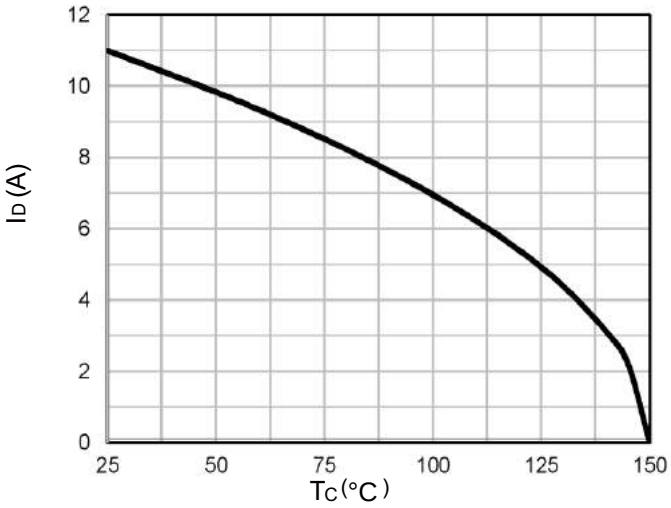


Figure 10: maximum drain current vs. case terperature

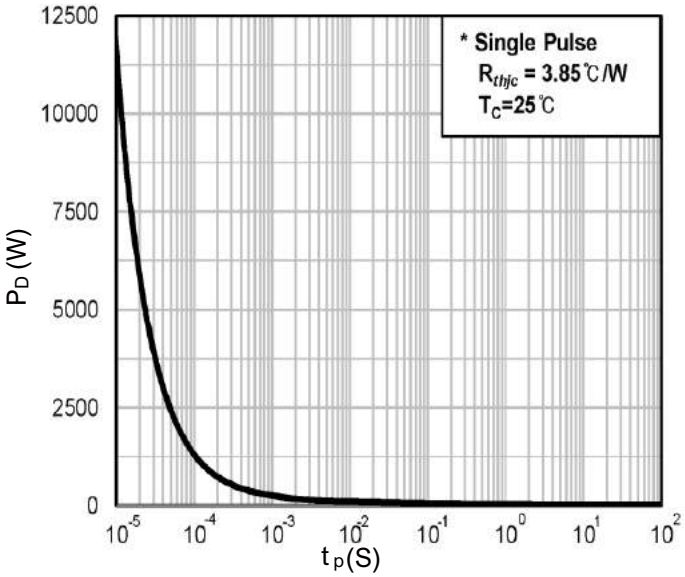


Figure 11: gate charge characteristics

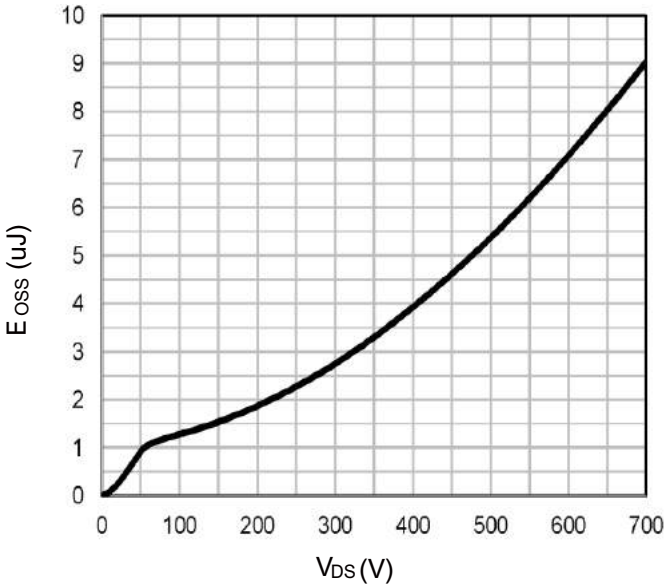


Figure 12: capacitance characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

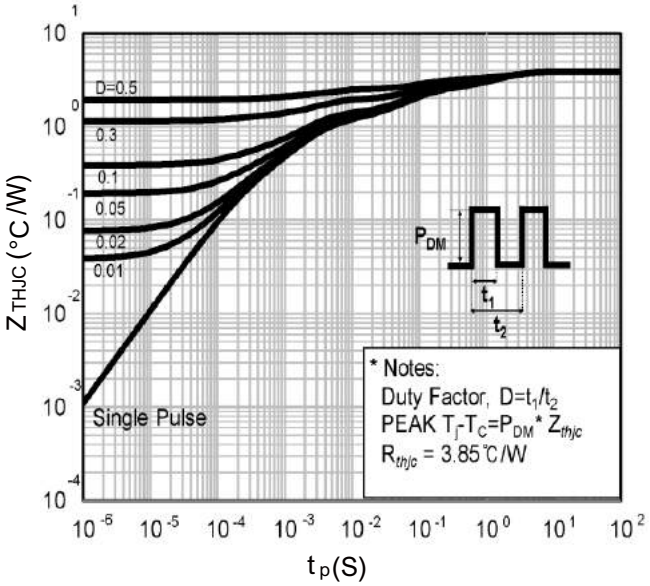


Figure 13: transient thermal responsecurve

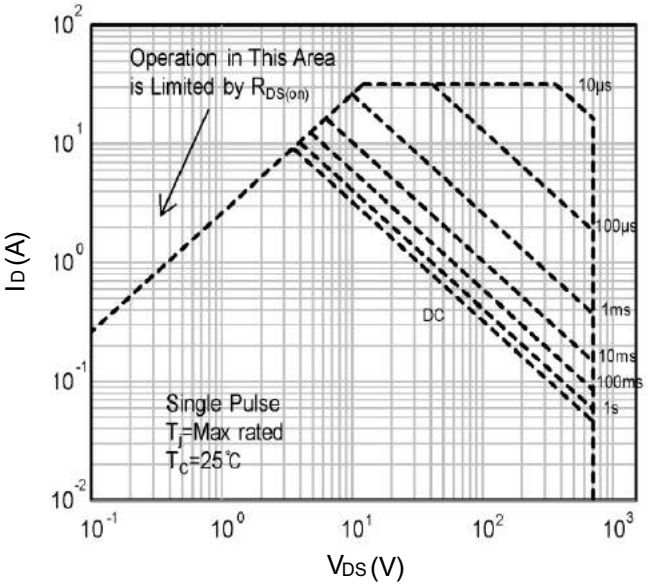


Figure 14: maximum safe operating area

■ TO-252-2L PACKAGE OUTLINE DIMENSIONS