

PRODUCT CHARACTERISTICS

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

APPLICATIONS

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

FEATURES

- * Low power loss by high speed switching and low resistance
- * 100% avalanche tested
- * Green package-Pb free plating, halogen free

ORDER INFORMATION

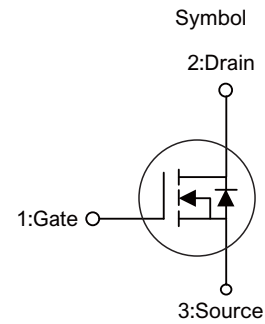
Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT70R380D	TO-252	2500 pieces /Reel

ABSOLUTE MAXIMUM RATINGS ($T_C=25^\circ\text{C}$, 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	$T_C=25^\circ\text{C}$	I_D	11	A
	$T_C=100^\circ\text{C}$	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 $+150$	$^\circ\text{C}$	

THERMAL PERFORMANCE

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



■ 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 T _J =55°C	-	-	1	uA
			-	-	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
Output 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

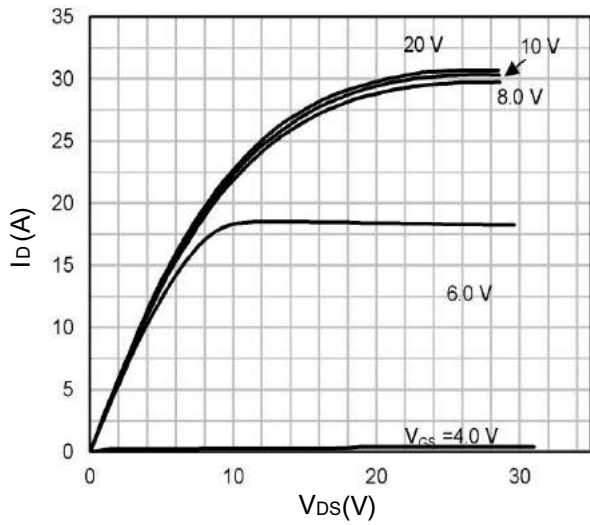


Figure1: on-region characteristics

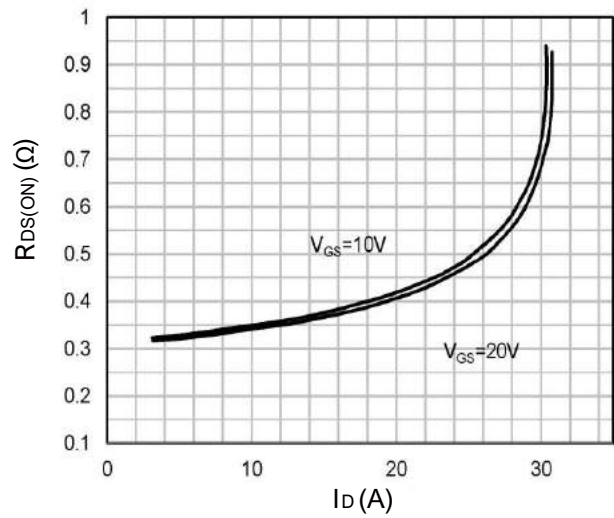


Figure2: on-resistance variation with drain current and gate voltage

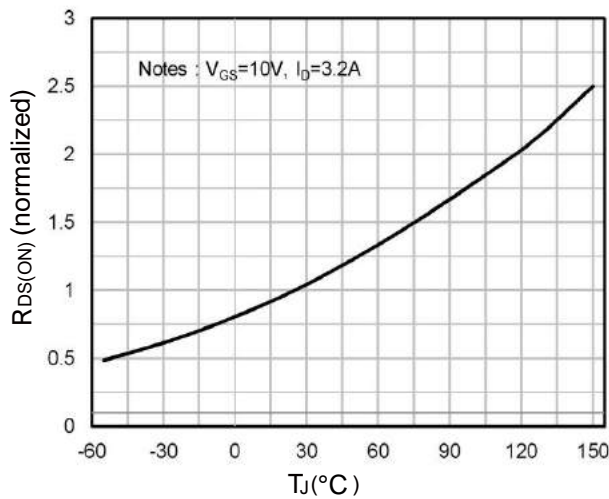


Figure3: on-resistance variation with temperature

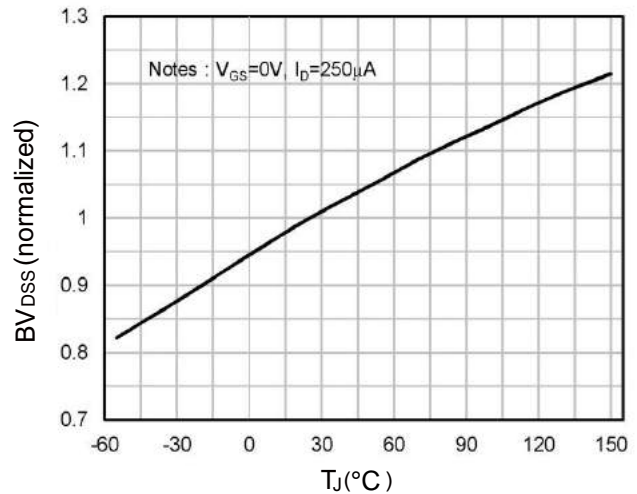


Figure4: breakdown voltage vs. temperature

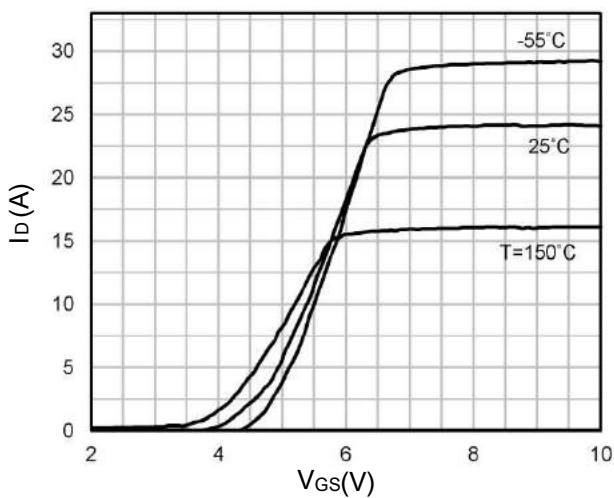


Figure5: transfer characteristics

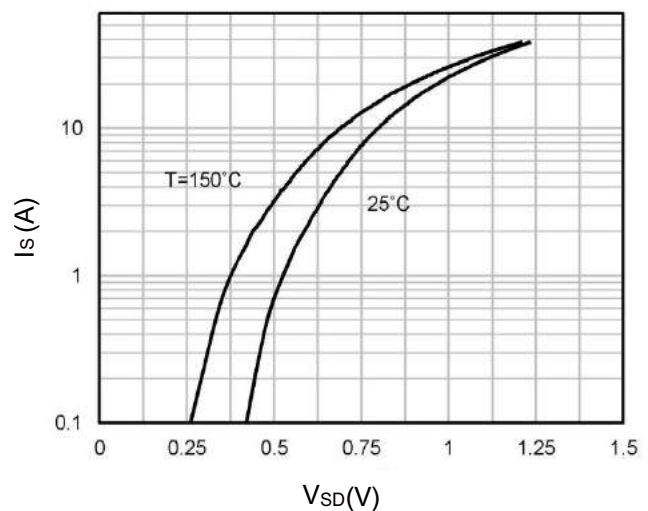


Figure6: body diode-forward voltage variation with source current and temperature

■ TYPICAL CHARACTERISTICS(Cont.)

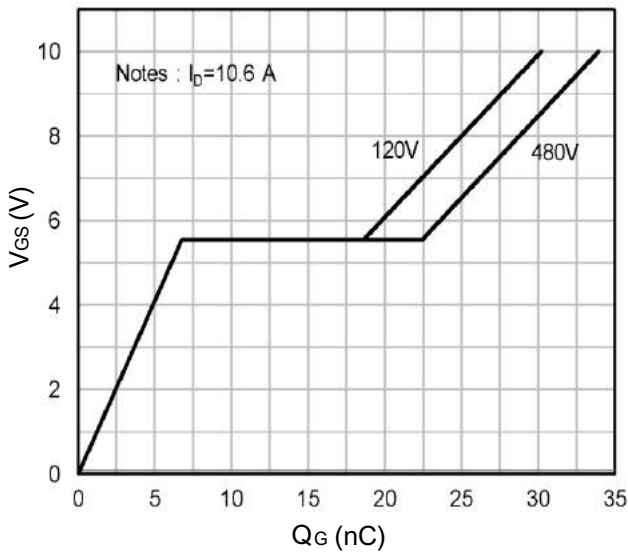


Figure 7: gate charge characteristics

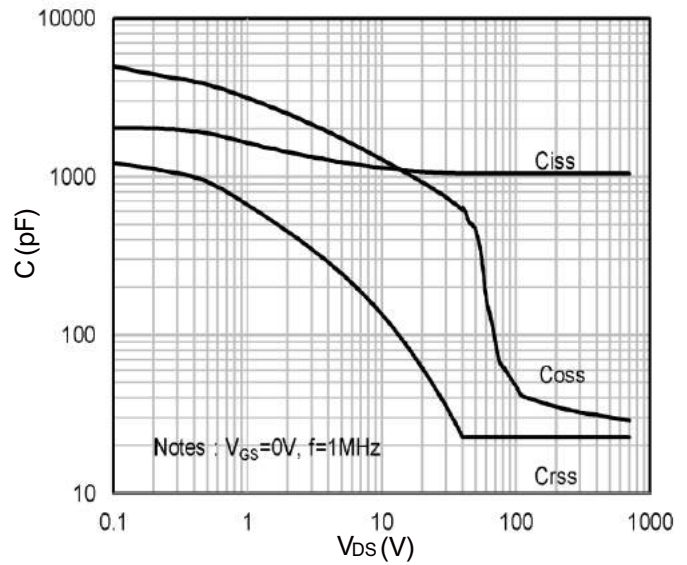


Figure 8: capacitance characteristics

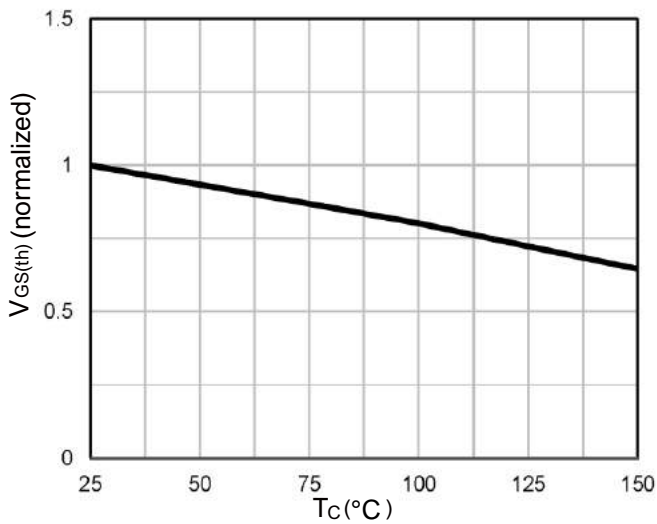


Figure 9: $V_{GS(th)}$ variation with temperature (normalized)

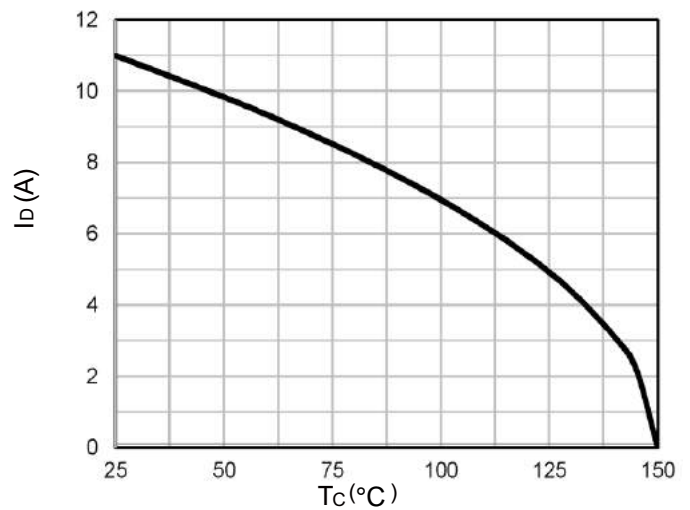


Figure 10: maximum drain current vs. case temperature

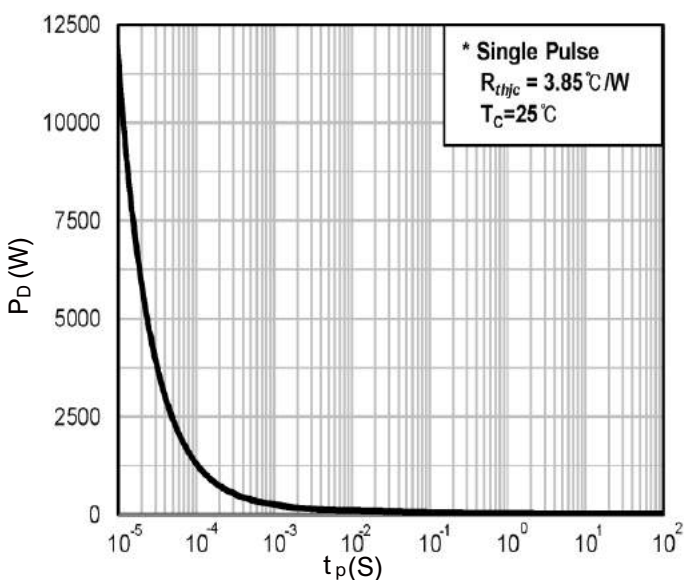


Figure 11: gate charge characteristics

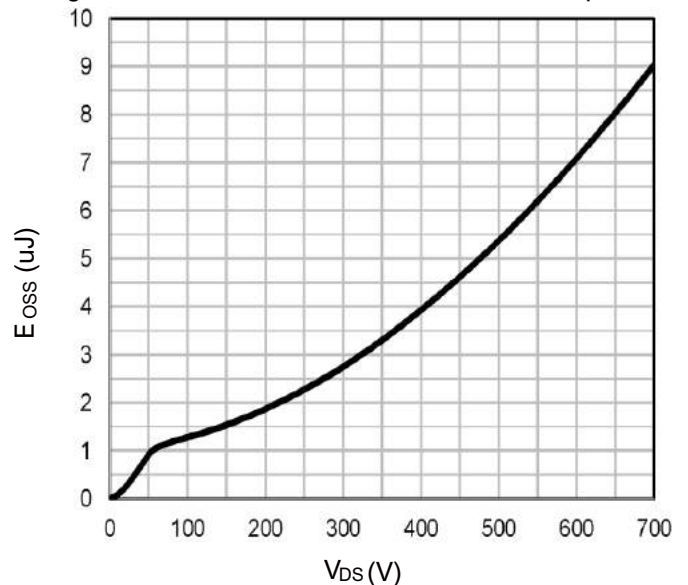


Figure 12: capacitance characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

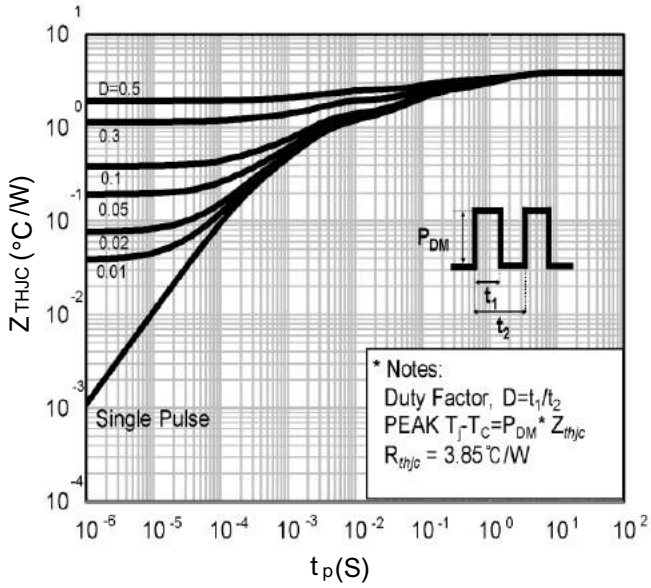


Figure 13: transient thermal response curve

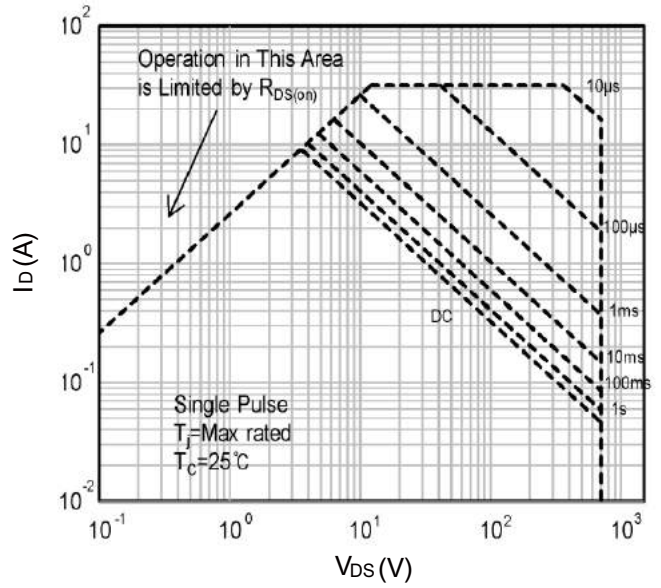
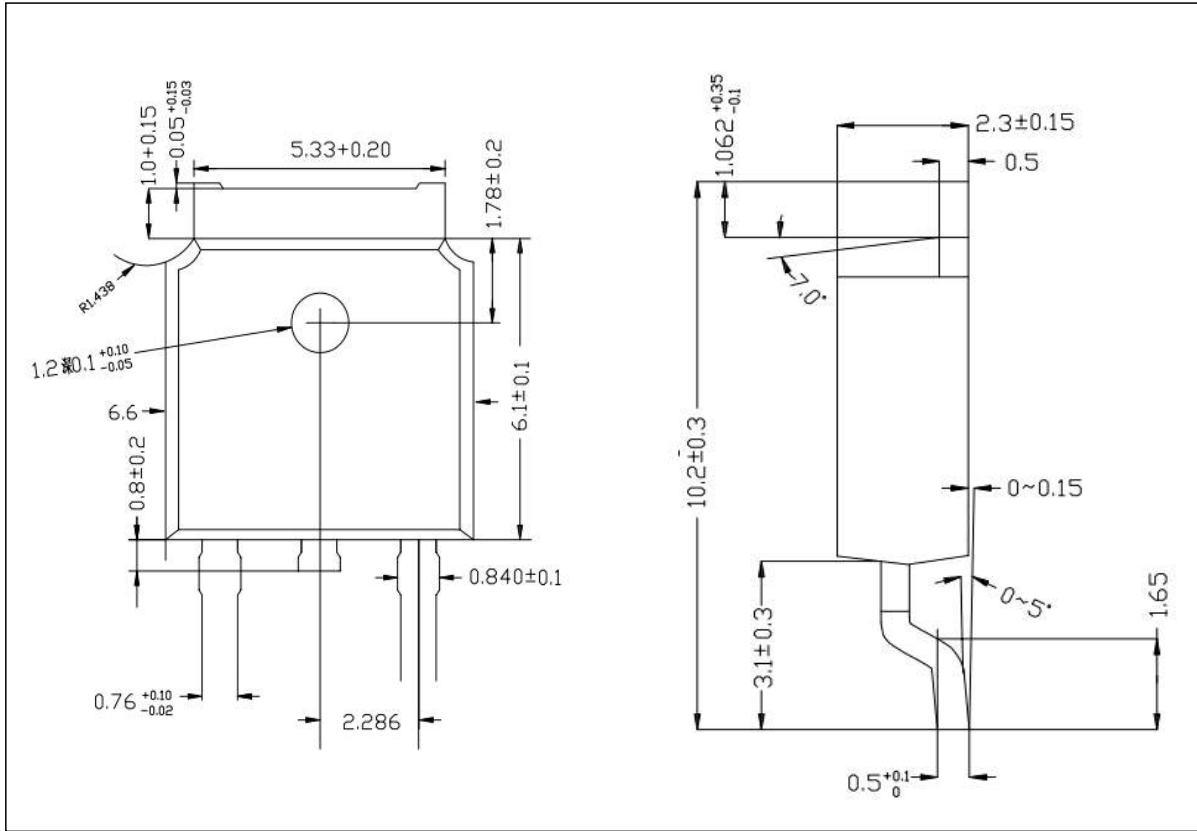


Figure 14: maximum safe operating area

■ TO-252-2L PACKAGE OUTLINE DIMENSIONS



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