

PRODUCT CHARACTERISTICS

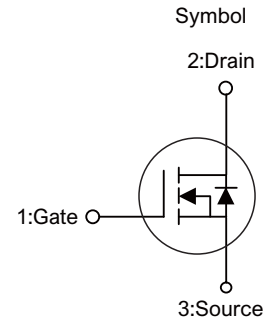
V_{DSS}	700V
$R_{DS(ON)Typ}(@V_{GS}=10V)$	0.35 Ω
ID	11A

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	MOT70R380F	TO-220F	50 pieces/Tube

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	$T_C=25^\circ\text{C}$	11	A
	$T_C=100^\circ\text{C}$	7	A
Pulsed drain current	I_{DM}	33	A
Avalanche energy	E_{AS}	215	mJ
Power dissipation	P_D	32.4	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	$R_{\theta JC}$	3.85	$^\circ\text{C/W}$

■ ELECTRICAL CHARACTERISTICS($T_C = 25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	700	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=700V, V_{GS}=0V$ $T_J=55^\circ\text{C}$	-	-	1	μA
			-	-	5	μA
Gate-body leakage current	I_{GSS}	$V_{GS}=\pm 30V, V_{DS}=0V$	-	-	± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	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	$T_C=25^\circ\text{C}$	-	-	11	A
DYNAMIC PARAMETERS						
Input capacitance	C_{ISS}	$V_{GS}=0V, V_{DS}=25V, f=1\text{MHz}$	-	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	$t_{D(on)}$	$V_{GS}=10V, V_{DS}=350V, R_G=25\Omega, I_D=11A$	-	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}	$I_F=11A, dI_F/dt=100A/\mu s$	-	385	-	nS
Body-diode reverse recovery charge	Q_{rr}	$I_F=11A, dI_F/dt=100A/\mu s$	-	4.8	-	nC

■ TYPICAL CHARACTERISTICS

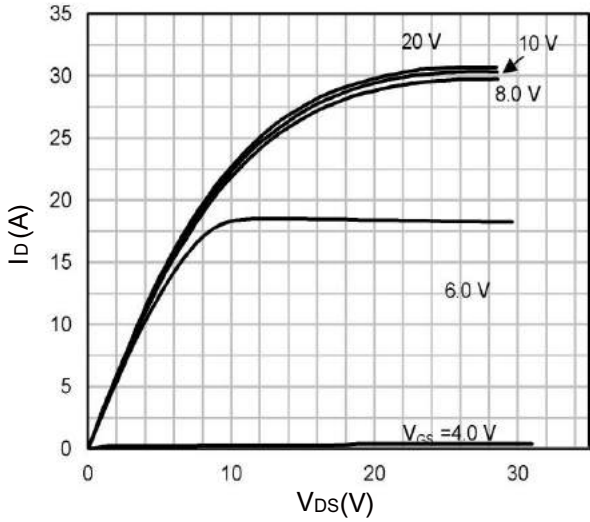


Figure1: on-region characteristics

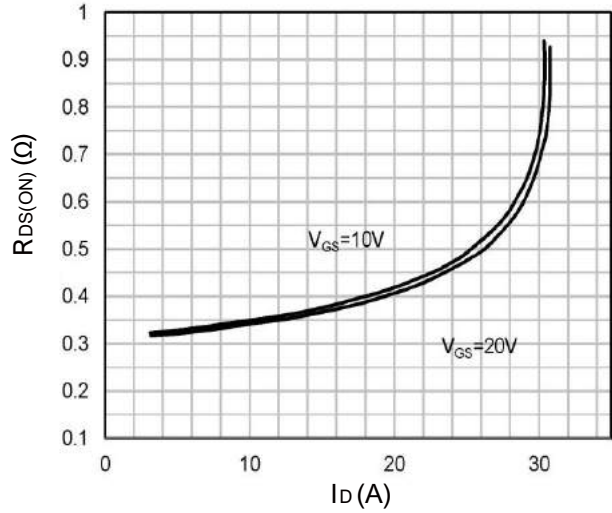


Figure2: on-resistance variation with drain current and gate voltage

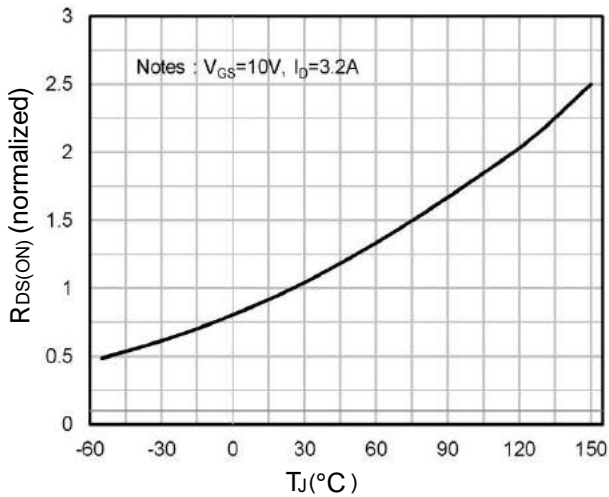


Figure3: on-resistance variation with temperature

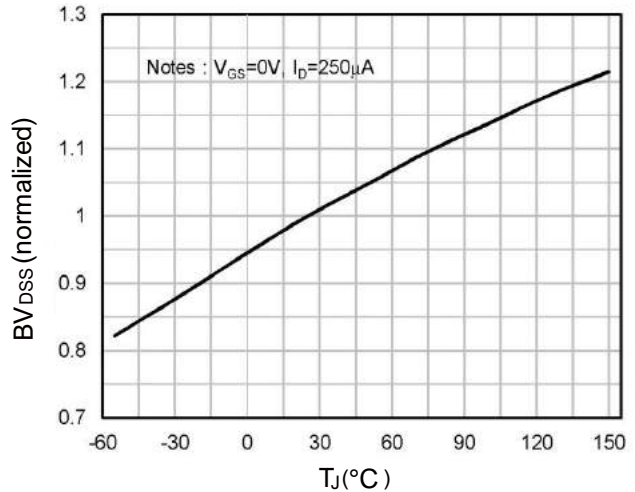


Figure4: breakdown voltage vs. temperature

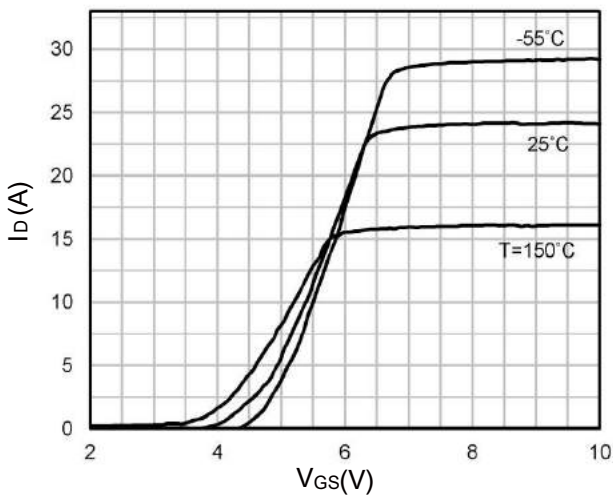


Figure5: transfer characteristics

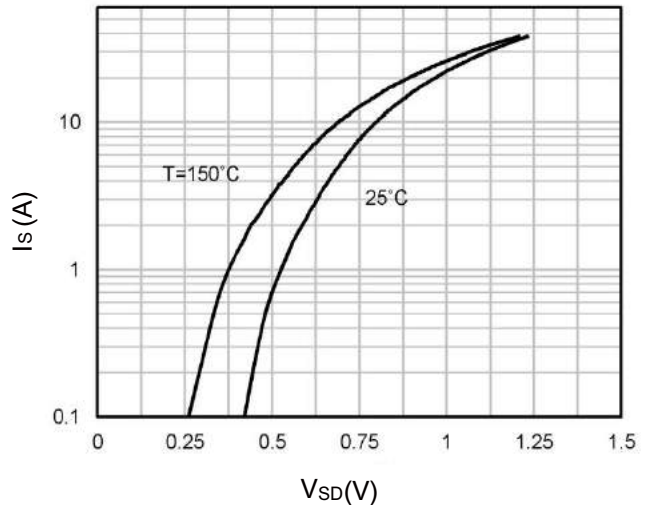


Figure6: body diode-forward voltage variation with source current and temperature

■ TYPICAL CHARACTERISTICS(Cont.)

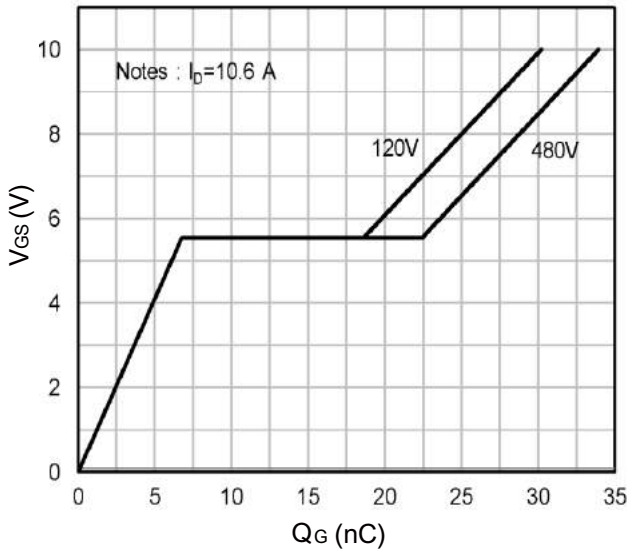


Figure 7: gate charge characteristics

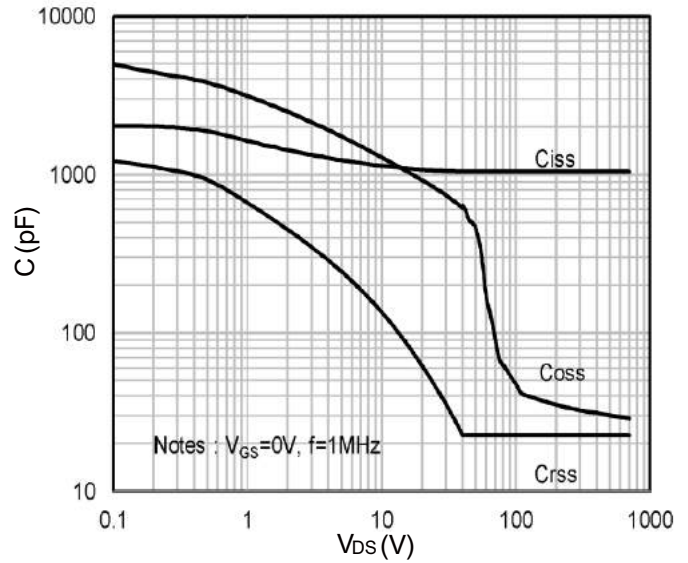


Figure 8: capacitance characteristics

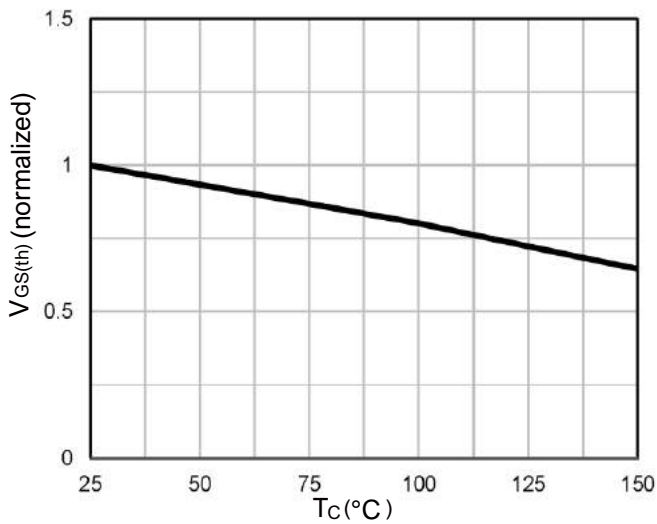


Figure 9: $V_{GS(th)}$ variation with temperature(normalized)

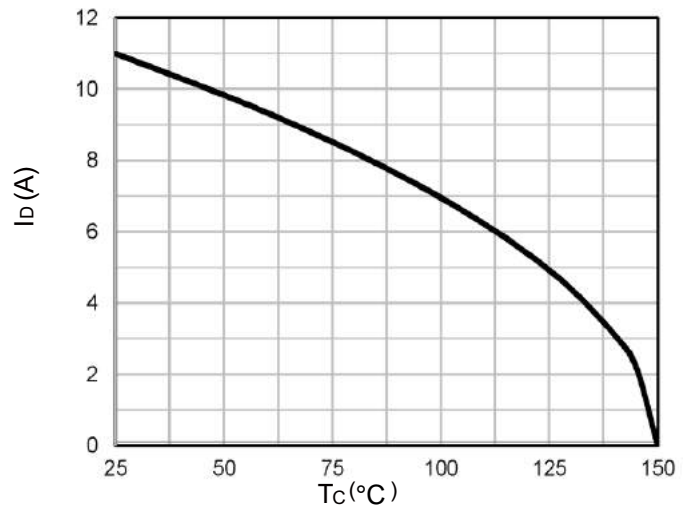


Figure 10: maximum drain current vs. case temperature

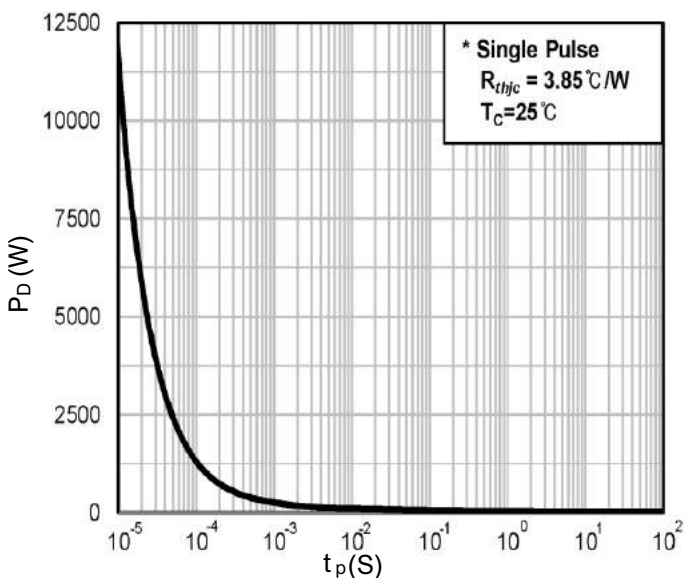


Figure 11: gate charge characteristics

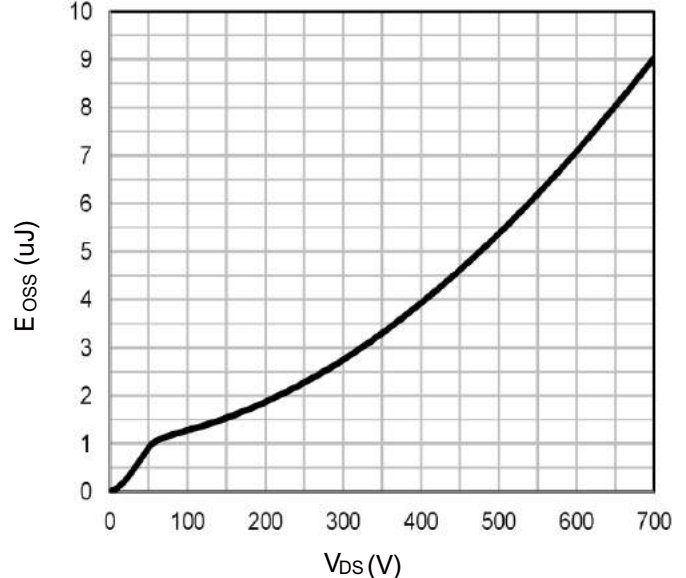


Figure 12: capacitance characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

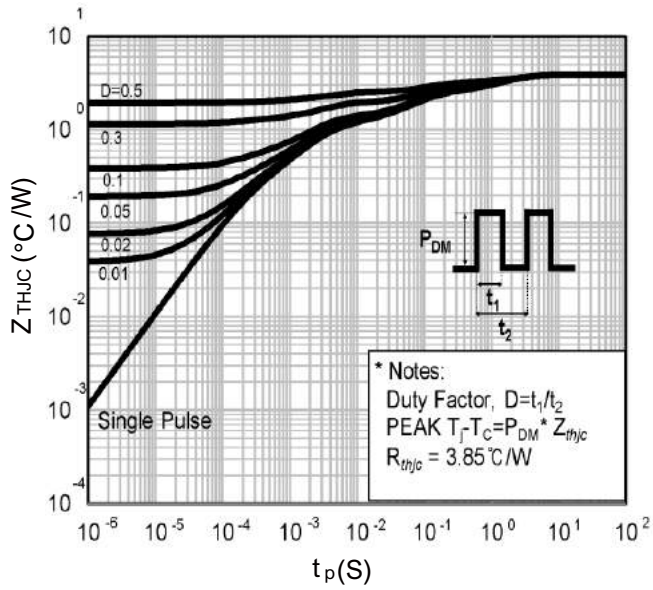


Figure 13: transient thermal responsecurve

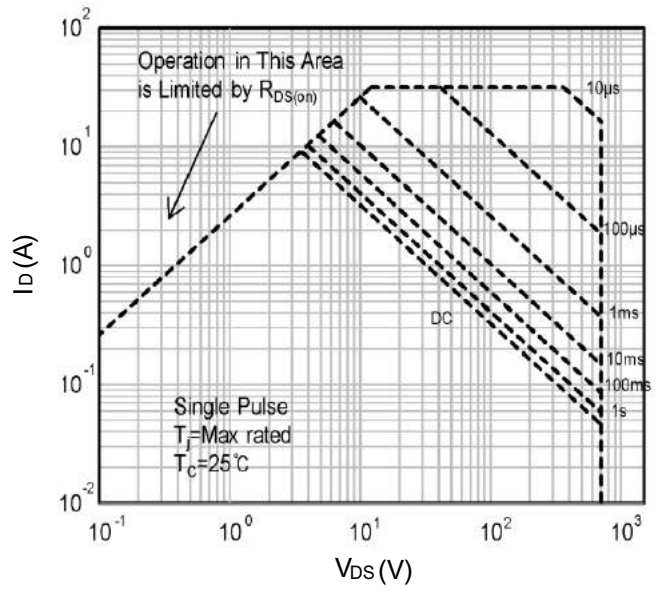
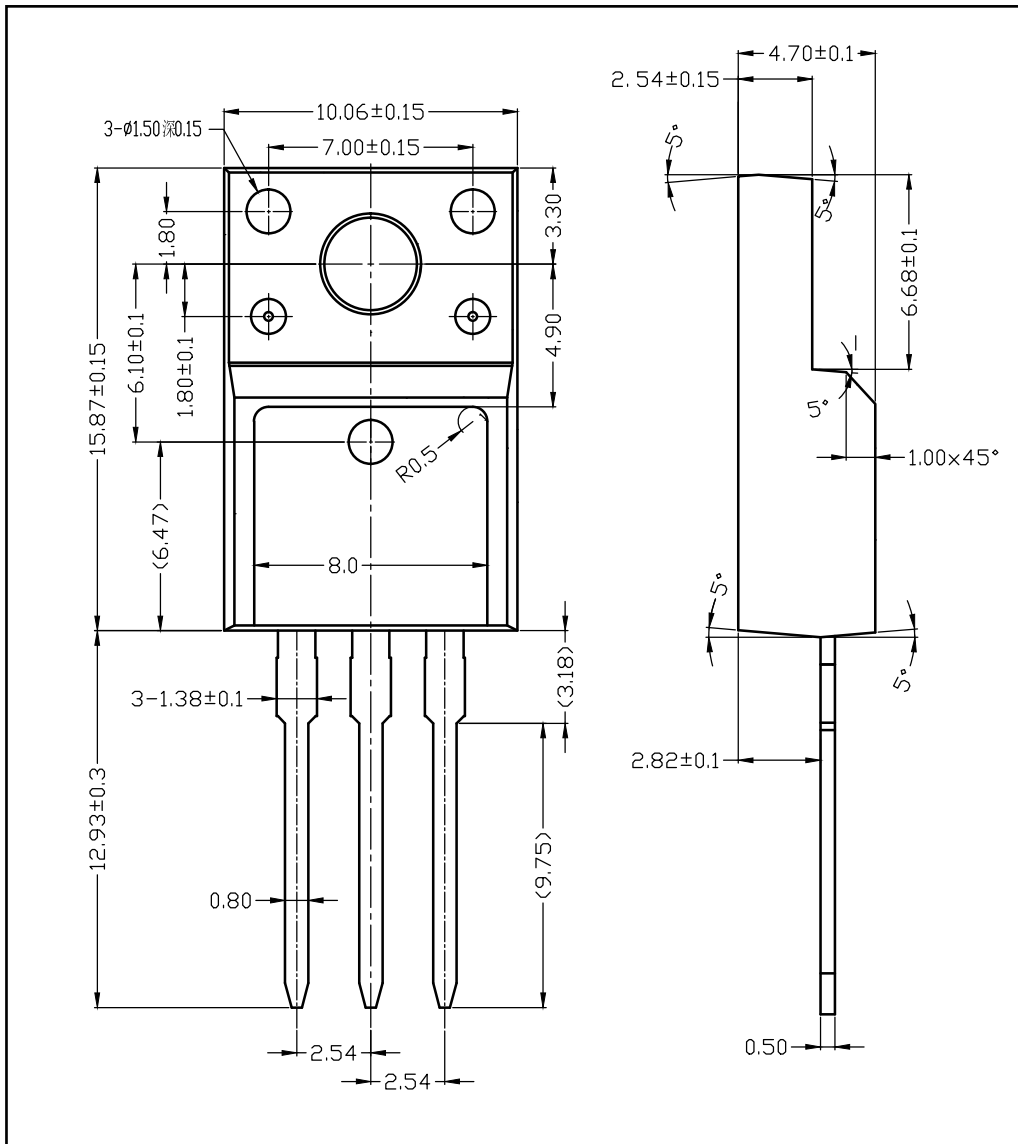


Figure 14: maximum safe operating area

■ TO-220F-3L PACKAGE OUTLINE DIMENSIONS



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