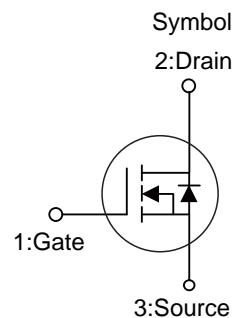


■ PRODUCT CHARACTERISTICS

V <sub>DSS</sub>	700V
R <sub>DS(ON)</sub> Typ(@V <sub>GS</sub> =10V)	1.45Ω
Qg@typ	23nC
I <sub>D</sub>	7A

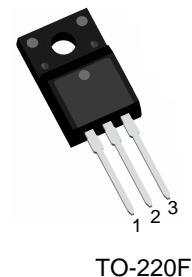


■ APPLICATIONS

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

■ FEATURE

- \* High Switching Speed
- \* Improved dv/dt capability



■ ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT7N70F	TO-220F	50 pieces/Tube

■ ABSOLUTE MAXIMUM RATINGS(T<sub>A</sub> =25°C, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V <sub>DSS</sub>	700	V
Gate-Source Voltage	V <sub>GSS</sub>	±30	V
Drain Current Continuous(@V <sub>GS</sub> =10V, T <sub>A</sub> =25°C)	I <sub>D</sub>	7	A
Drain Current Pulsed	I <sub>DM</sub>	28	A
Avalanche Energy *	E <sub>AS</sub>	595	mJ
Peak Diode Recovery dv/dt	dv/dt	5.0	V/ns
Power Dissipation	P <sub>D</sub>	38	W
Junction Temperature	T <sub>J</sub>	+150	°C
Storage Temperature	T <sub>STG</sub>	-55~ +150	°C

■ THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Ambient	R <sub>thJA</sub>	62.5	°C/W
Junction to Case	R <sub>thJC</sub>	3.29	°C/W

Note: \* EAS condition: T<sub>J</sub>=25°C, V<sub>DD</sub>=50V, V<sub>G</sub>=10V, L=10mH, R<sub>G</sub>=25Ω

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	$V_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	700	-	-	V
Drain to Source Leakage Current	$I_{DSS}$	$V_{DS}=700V, V_{GS}=0V$	-	-	1	$\mu A$
Gate to Source Forward Leakage	$I_{GSS(F)}$	$V_{DS}=0V, V_{GS}=+30V$	-	-	100	nA
Gate to Source Reverse Leakage	$I_{GSS(R)}$	$V_{DS}=0V, V_{GS}=-30V$	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=3.5A$	-	1.45	1.7	$\Omega$
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	-	4	V
Dynamic characteristics						
Gate capacitance	$R_g$	$V_{GS}=0V, V_{DS}=0V, f=1.0MHz$	-	3	-	$\Omega$
Forward Transconductance	$g_{fs}$	$V_{DS}=10V, I_D=3A$	-	10	-	S
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V$ $f=1.0MHz$	-	1200	-	pF
Output Capacitance	$C_{oss}$		-	77	-	pF
Reverse Transfer Capacitance	$C_{rss}$		-	2.5	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	$t_{d(ON)}$	$I_D=7A, V_{DS}=350V$ $R_G=10\Omega, V_{GS}=10V$	-	19	-	ns
Rise Time	$t_r$		-	16	-	ns
Turn-off Delay Time	$t_{d(OFF)}$		-	39	-	ns
Fall Time	$t_f$		-	11	-	ns
Total Gate Charge	$Q_g$	$I_D=7A, V_{DS}=350V$ $V_{GS}=10V$	-	23	-	nC
Gate to Source Charge	$Q_{gs}$		-	5.2	-	nC
Gate to Drain("Miller") Charge	$Q_{gd}$		-	12	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	$I_S$		-	-	7	A
Maximum Pulsed Current(Body Diode)	$I_{SM}$		-	-	28	A
Diode Forward Voltage	$V_{SD}$	$I_{SD}=1A, V_{GS}=0V$	-	0.73	1.2	V
Reverse Recovery Time	$t_{rr}$	$I_{SD}=7A, T_J=25^{\circ}\text{C}$	-	451	-	ns
Reverse Recovery Charge	$Q_{rr}$	$di/dt=100A/\mu s$	-	2461	-	nC

■ TYPICAL CHARACTERISTICS

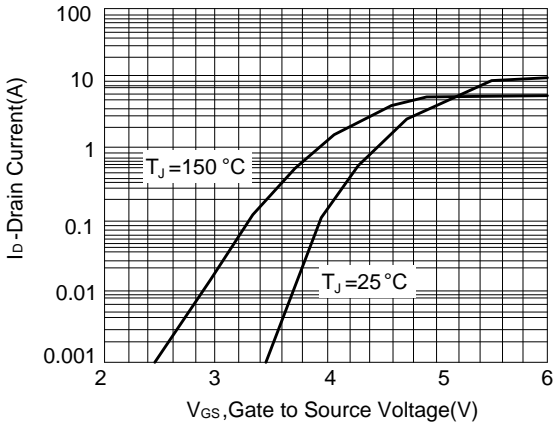


Figure 1: Transfer Characteristics

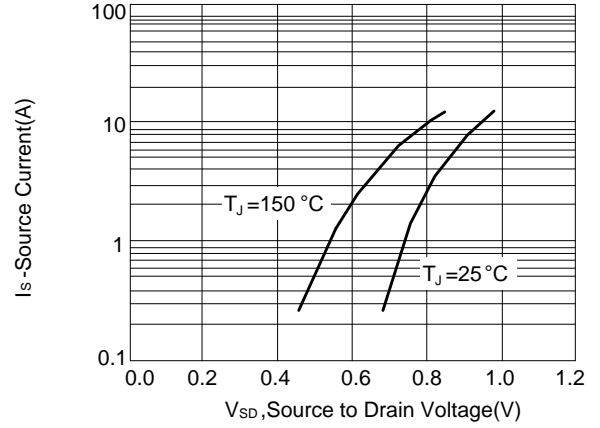


Figure 2: Body Diode Characteristics

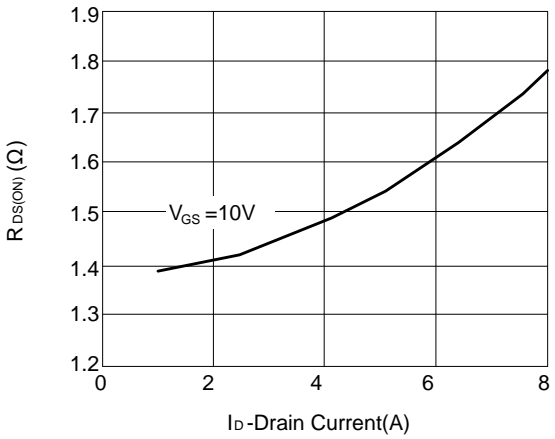


Figure 3: Drain to Source On-Resistance vs Drain Current

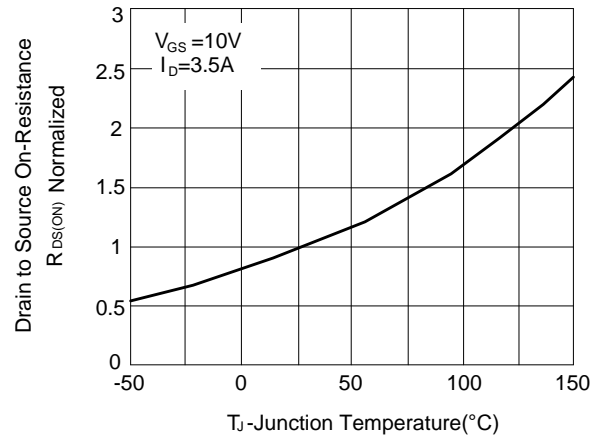


Figure 4: Drain to Source On-Resistance vs Junction Temperature

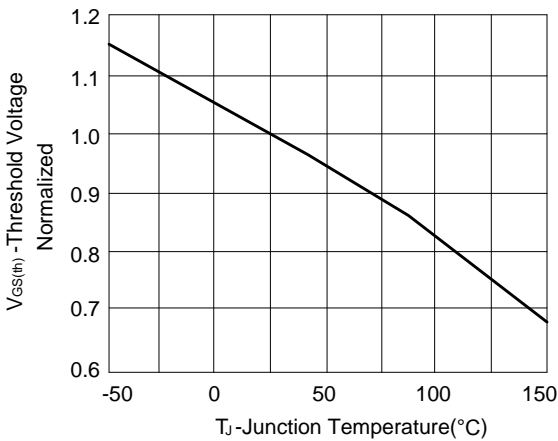


Figure 5: Threshold Voltage vs Junction Temperature

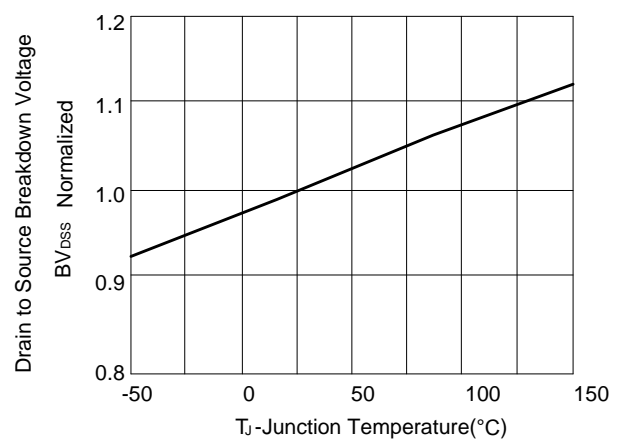


Figure 6: Breakdown Voltage vs Junction Temperature

■ TYPICAL CHARACTERISTICS(Cont.)

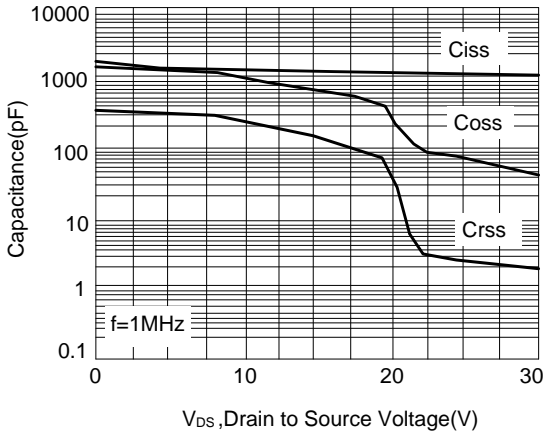


Figure 7: Capacitance vs Drain to Source Voltage

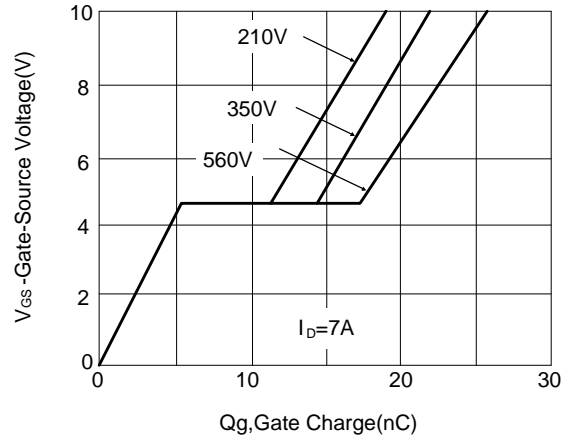


Figure 8: Gate Charge vs Gate to Source Voltage

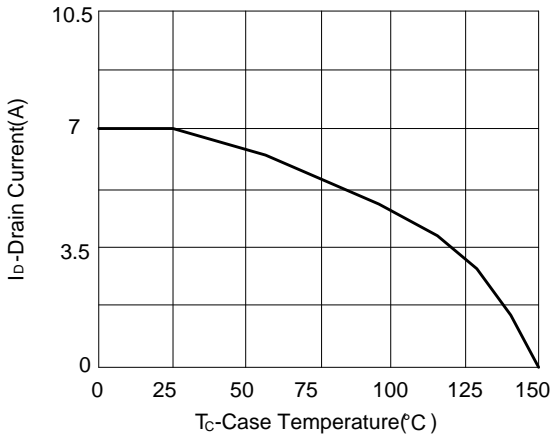


Figure 9: Continuous Drain vs Case Temperature

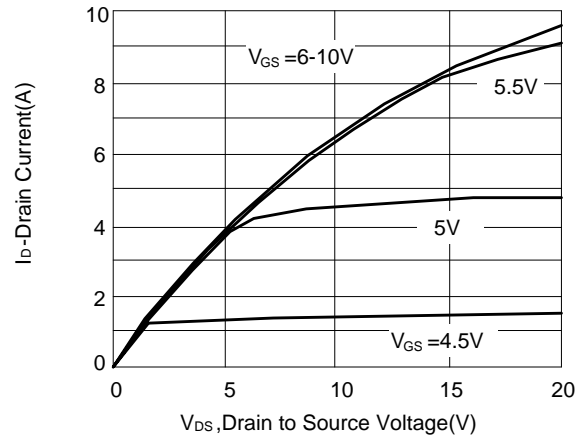


Figure 10: Output Characteristics

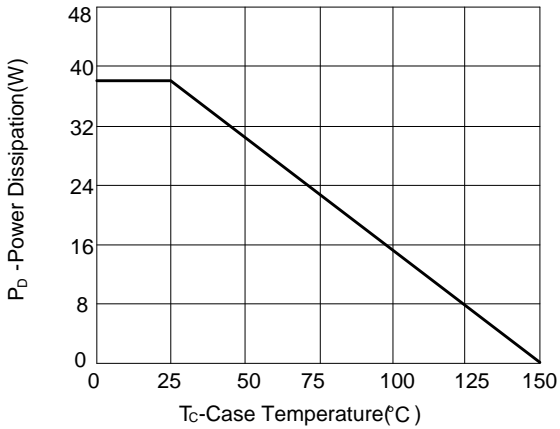


Figure 11: Power Dissipation vs Case Temperature

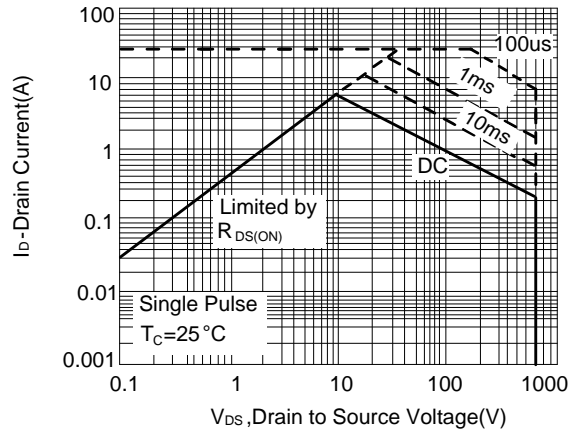


Figure 12: Safe operating Area

■ TO-220F PACKAGE OUTLINE DIMENSIONS

