

PRODUCT CHARACTERISTICS

VDSS	700V
$R_{DS(on)}$ Typ(@V _{GS} = 10 V)	0.24Ω
Qg@type	27nC
ID	15A

FEATURES

- Ultra low $R_{DS(on)}$
- Ultra low gate charge
- 100% UIS tested
- RoHS compliant

APPLICATIONS

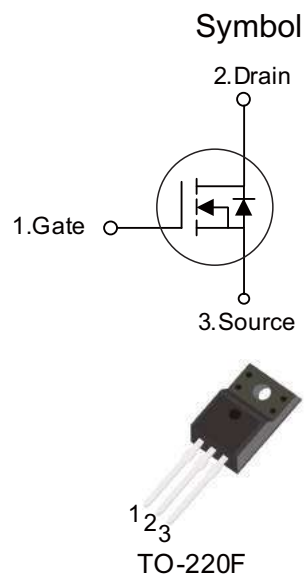
- Power facion correction
- Switched mode power supplies
- Uninterruptible power supply

ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT70R280HF	TO-220F	50 pieces/Tube

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V _{GS} = 0V)	V _{DSS}		V
Continuous Drain Current	I _D	15	A
Pulsed Drain Current	I _{DM}	45	A
Gate-Source Voltage	V _{GSS}	±30	V
Single Pulse Avalanche Energy	E _{AS}	290	mJ
Avalanche Current	I _{AS}	2.4	A
MOSFET dv/dt ruggedness, V _{DS} = 0...480V	dv/dt	50	V/ns
Power Dissipation (T _C = 25°C)	P _D	36	W
Thermal Resistance, Junction-to-Case	R _{θJC}	3.5	°C/W
Thermal Resistance, Junction-to-Ambient	R _{θJA}	80	°C/W
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55~+150	°C



ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Static characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	700	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 700V, V_{GS} = 0V, T_J = 25^{\circ}C$	-	-	1	μA
		$V_{DS} = 700V, V_{GS} = 0V, T_J = 150^{\circ}C$	-	-	100	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 30V$	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.5	-	4.5	V
Drain-Source On-State-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 7.5A$	-	0.24	0.28	Ω
Gate Resistance	R_G	$f = 1.0MHz$ open drain	-	12.5	-	Ω
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 100V,$ $f = 1.0MHz$	-	1122	-	pF
Output Capacitance	C_{oss}		-	38	-	pF
Reverse Transfer Capacitance	C_{rss}		-	2.5	-	pF
Total Gate Charge	Q_g	$V_{DD} = 520V, I_D = 15A,$ $V_{GS} = 10V$	-	27	-	nC
Gate-Source Charge	Q_{gs}		-	5.5	-	nC
Gate-Drain Charge	Q_{gd}		-	10.5	-	nC
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 400V, I_D = 15A,$ $R_G = 25\Omega$	-	25	-	ns
Turn-on Rise Time	t_r		-	63	-	ns
Turn-off Delay Time	$t_{d(off)}$		-	100	-	ns
Turn-off Fall Time	t_f		-	50	-	ns
Drain-source body diode characteristics						
Body Diode Forward Voltage	V_{SD}	$T_J = 25^{\circ}C, I_{SD} = 15A, V_{GS} = 0V$	-	0.9	1.2	V
Reverse Recovery Time	t_{rr}	$V_R = 400V, I_F = I_S,$ $di_F/dt = 100A/\mu s$	-	410	-	ns
Reverse Recovery Charge	Q_{rr}		-	4.1	-	μC
Peak Reverse Recovery Current	I_{rrm}		-	20	-	A

■ TYPICAL CHARACTERISTICS

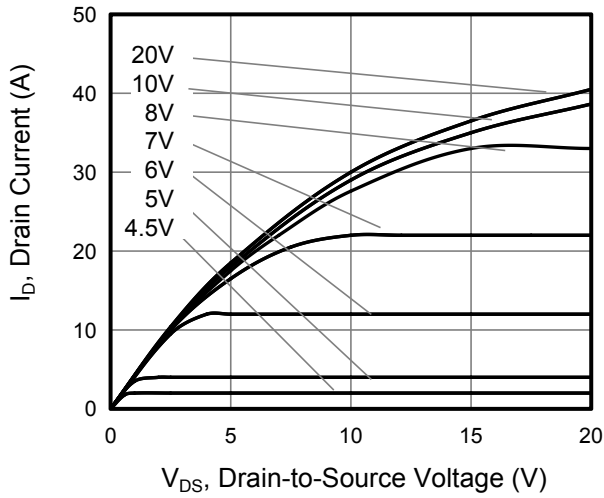


Figure 1. Output Characteristics

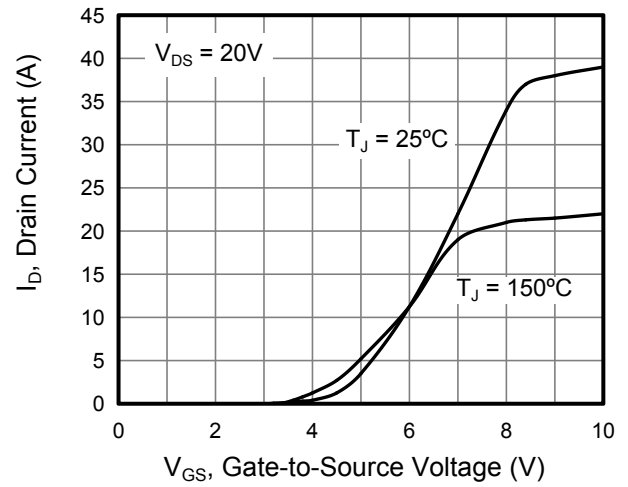


Figure 2. Transfer Characteristics

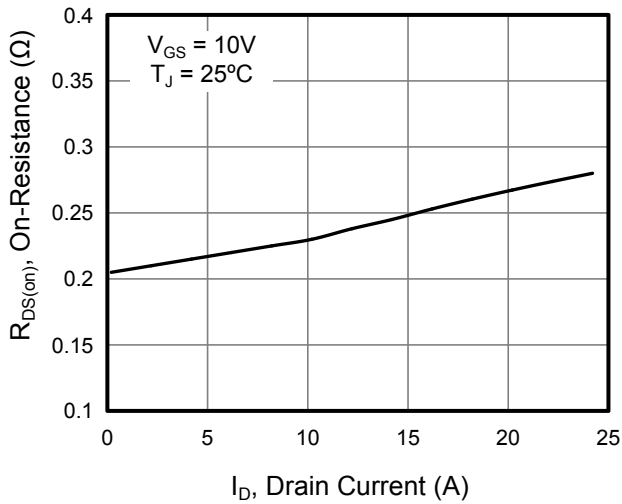


Figure 3. On-Resistance vs. Drain Current

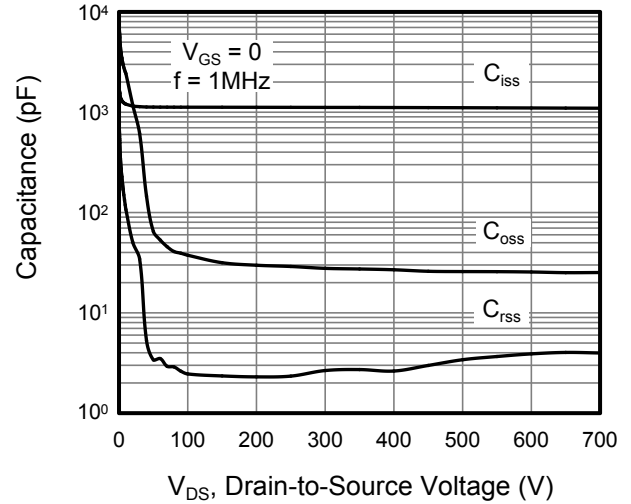


Figure 4. Capacitance

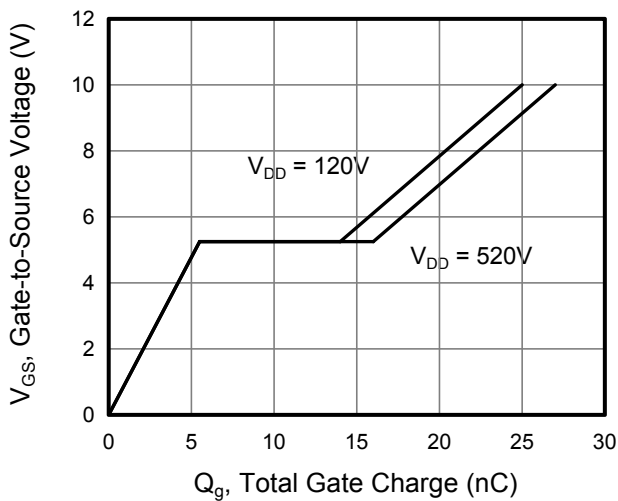


Figure 5. Gate Charge

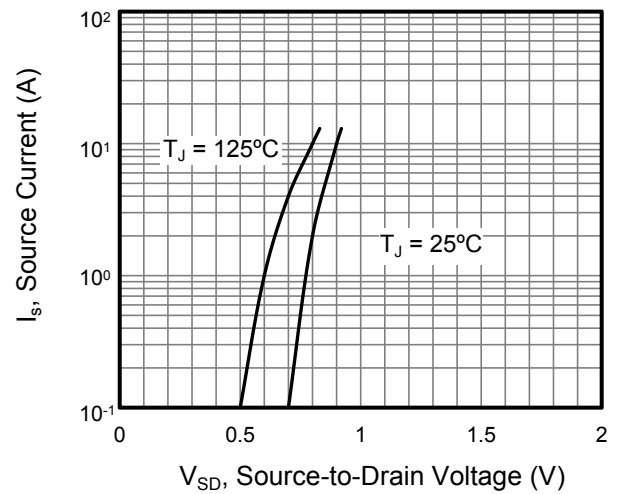


Figure 6. Body Diode Forward Voltage

■ TYPICAL CHARACTERISTICS(Cont.)

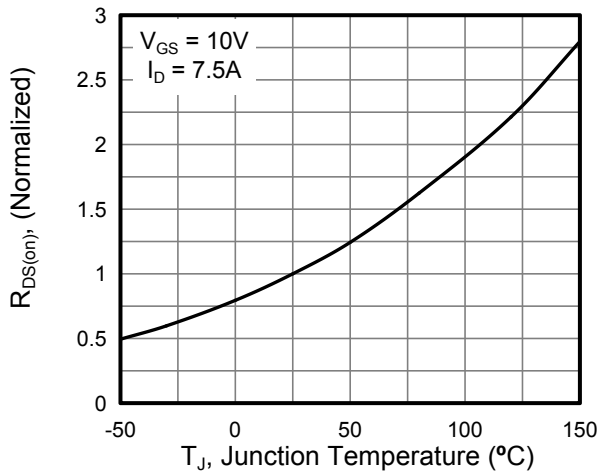


Figure 7. On-Resistance vs. Temperature

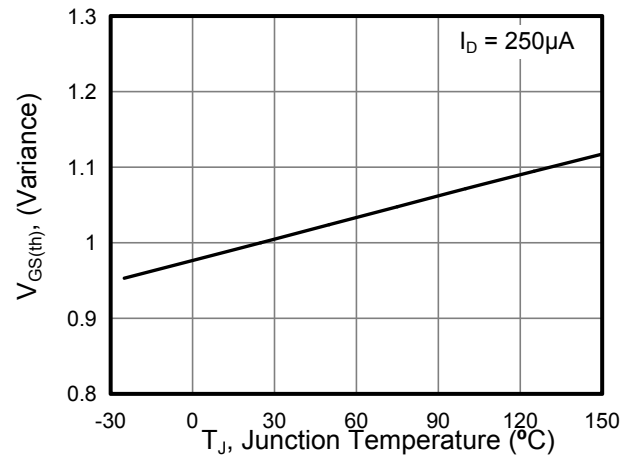


Figure 8. Breakdown voltage vs. Junction Temperature

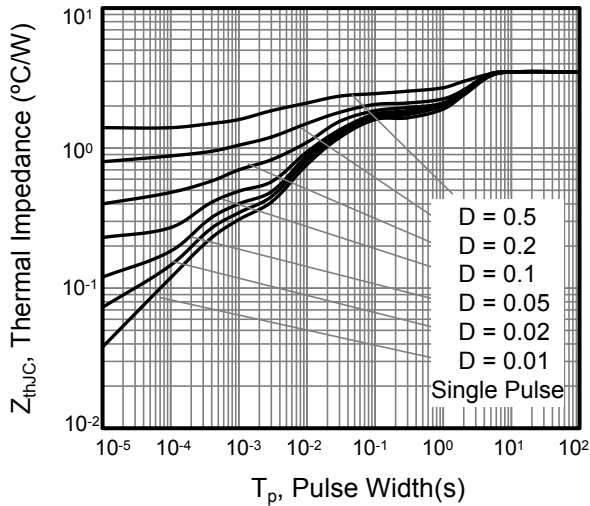


Figure 9. Transient Thermal Impedance

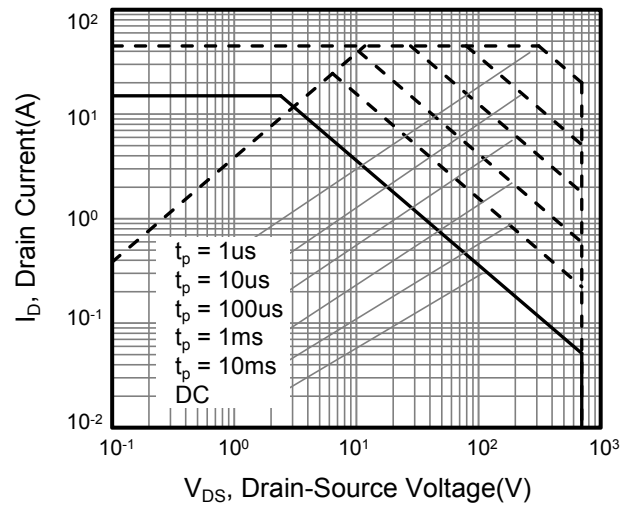


Figure 10. Safe Operation Area For

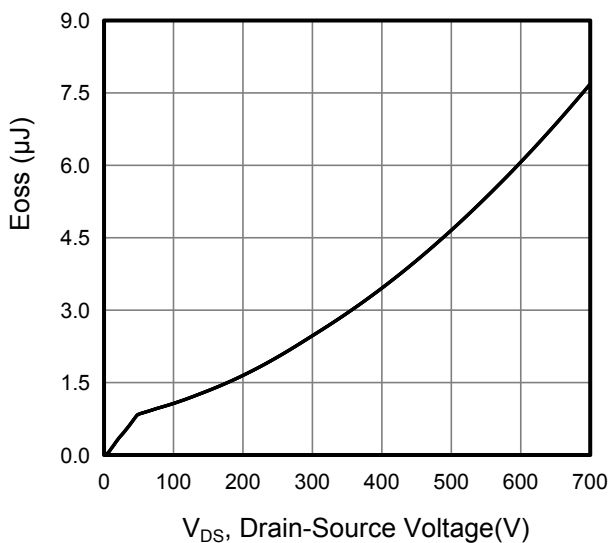


Figure 11. Typ. Coss Stored Energy

■ TO-220F-3L PACKAGE OUTLINE DIMENSIONS

