

**PRODUCT CHARACTERISTICS**

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

**FEATURES**

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

**APPLICATIONS**

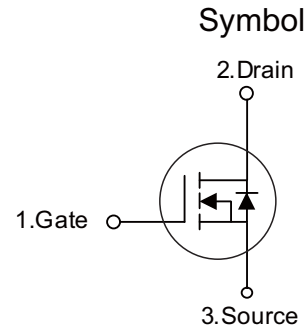
- Power factor correction
- Switched mode power supplies
- Uninterruptible power supply

**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
<b>Static characteristics</b>						
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	$\mu A$
		$V_{DS} = 700V, V_{GS} = 0V, T_J = 150^\circ C$	-	-	100	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 30V$	-	-	$\pm 100$	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	$\Omega$
Gate Resistance	$R_G$	$f = 1.0MHz$ open drain	-	12.5	-	$\Omega$
<b>Dynamic characteristics</b>						
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
<b>Drain-source body diode characteristics</b>						
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	-	$\mu C$
Peak Reverse Recovery Current	$I_{rrm}$		-	20	-	A

■ TYPICAL CHARACTERISTICS

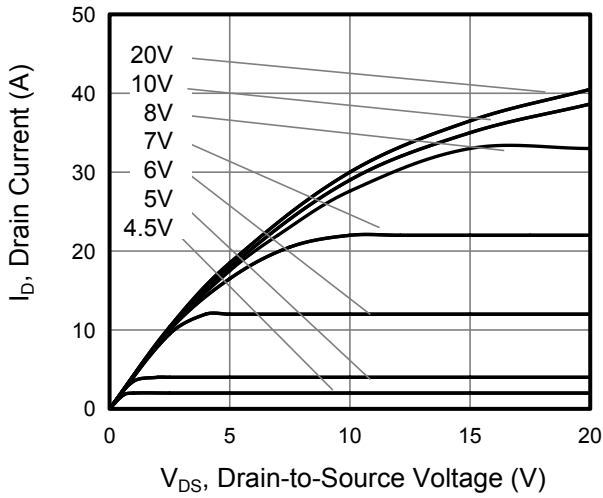


Figure 1. Output Characteristics

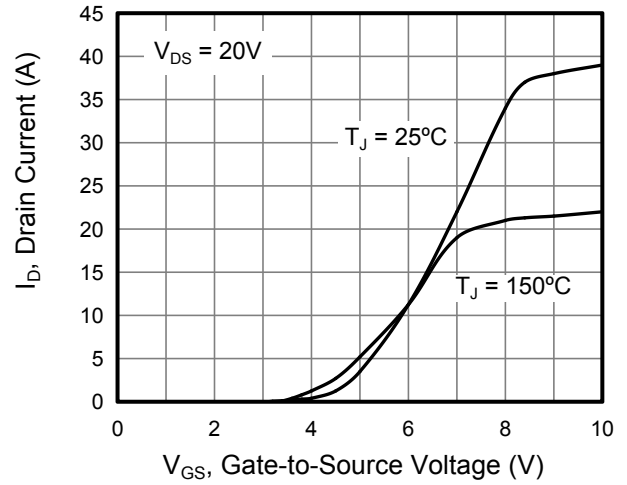


Figure 2. Transfer Characteristics

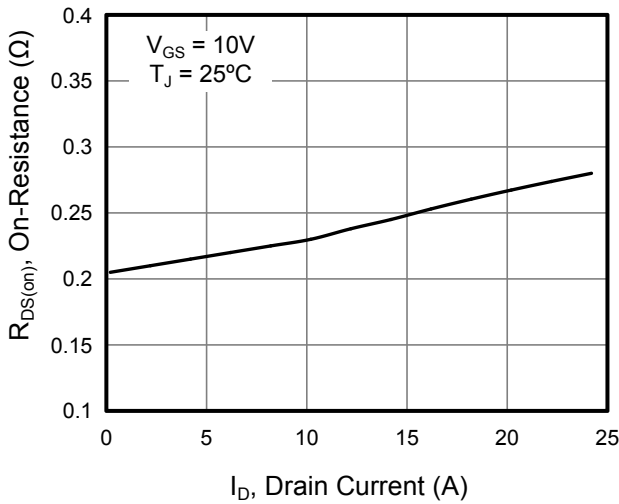


Figure 3. On-Resistance vs. Drain Current

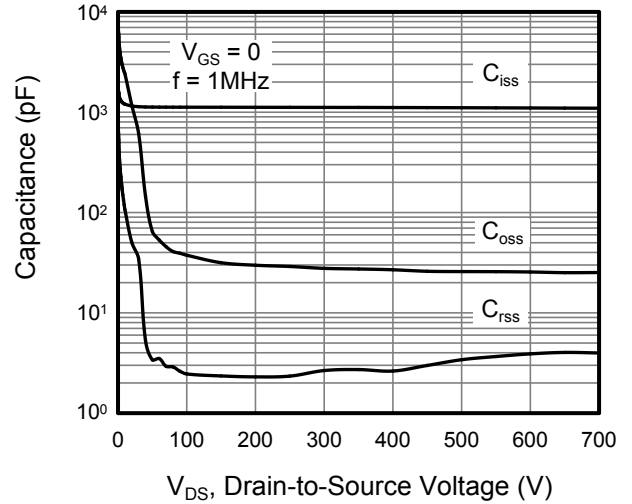


Figure 4. Capacitance

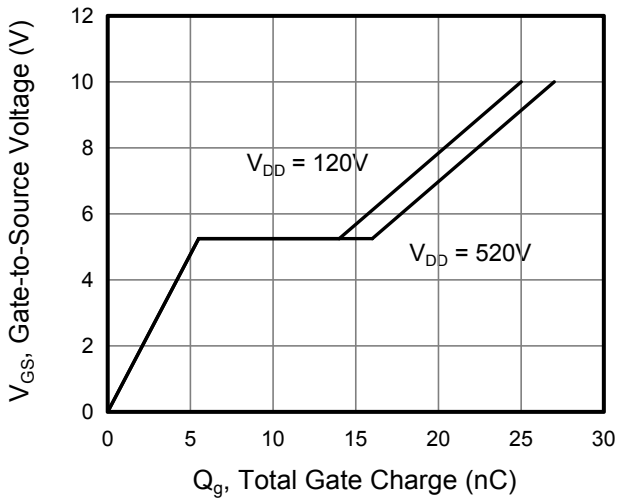


Figure 5. Gate Charge

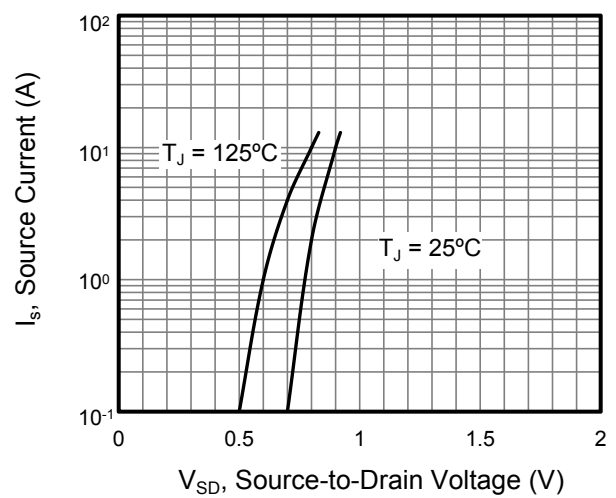


Figure 6. Body Diode Forward Voltage

■ TYPICAL CHARACTERISTICS(Cont.)

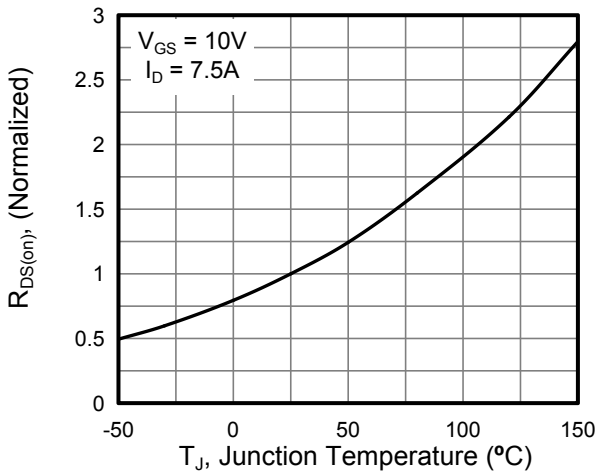


Figure 7. On-Resistance vs. Temperature

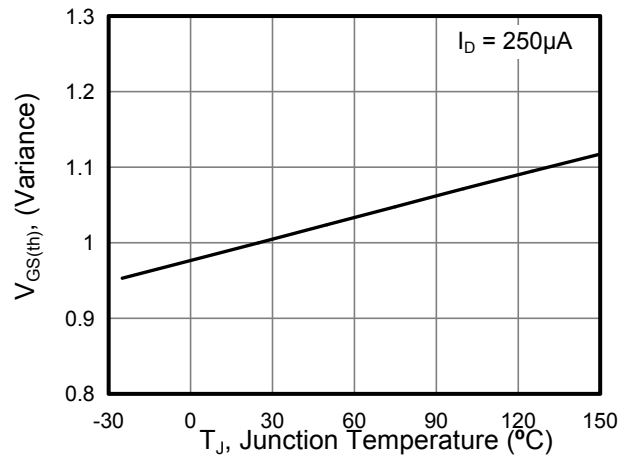


Figure 8. Breakdown voltage vs. Junction Temperature

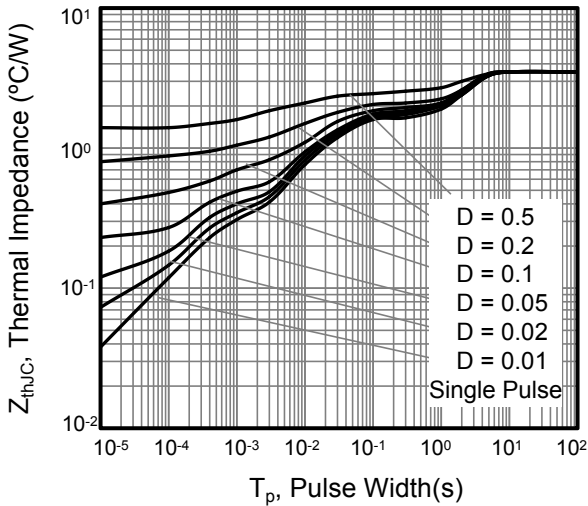


Figure 9. Transient Thermal Impedance

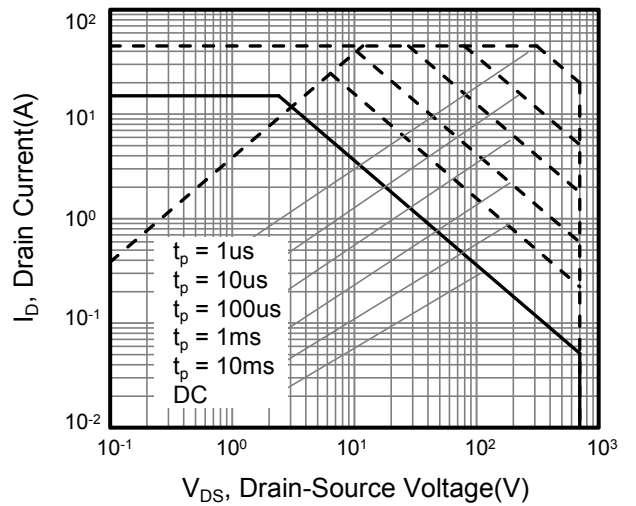


Figure 10. Safe Operation Area For

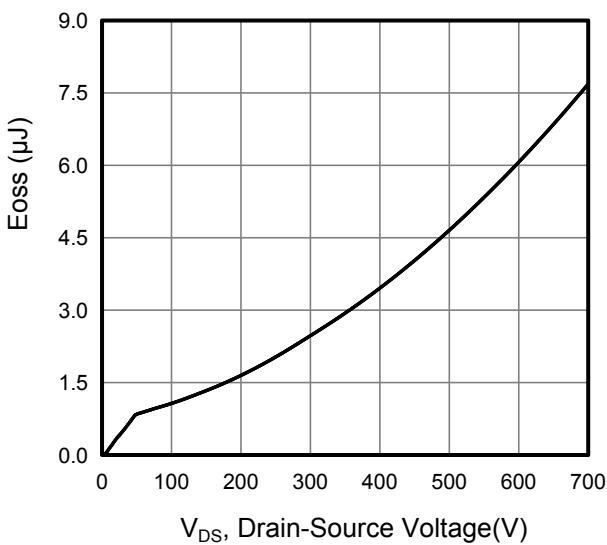
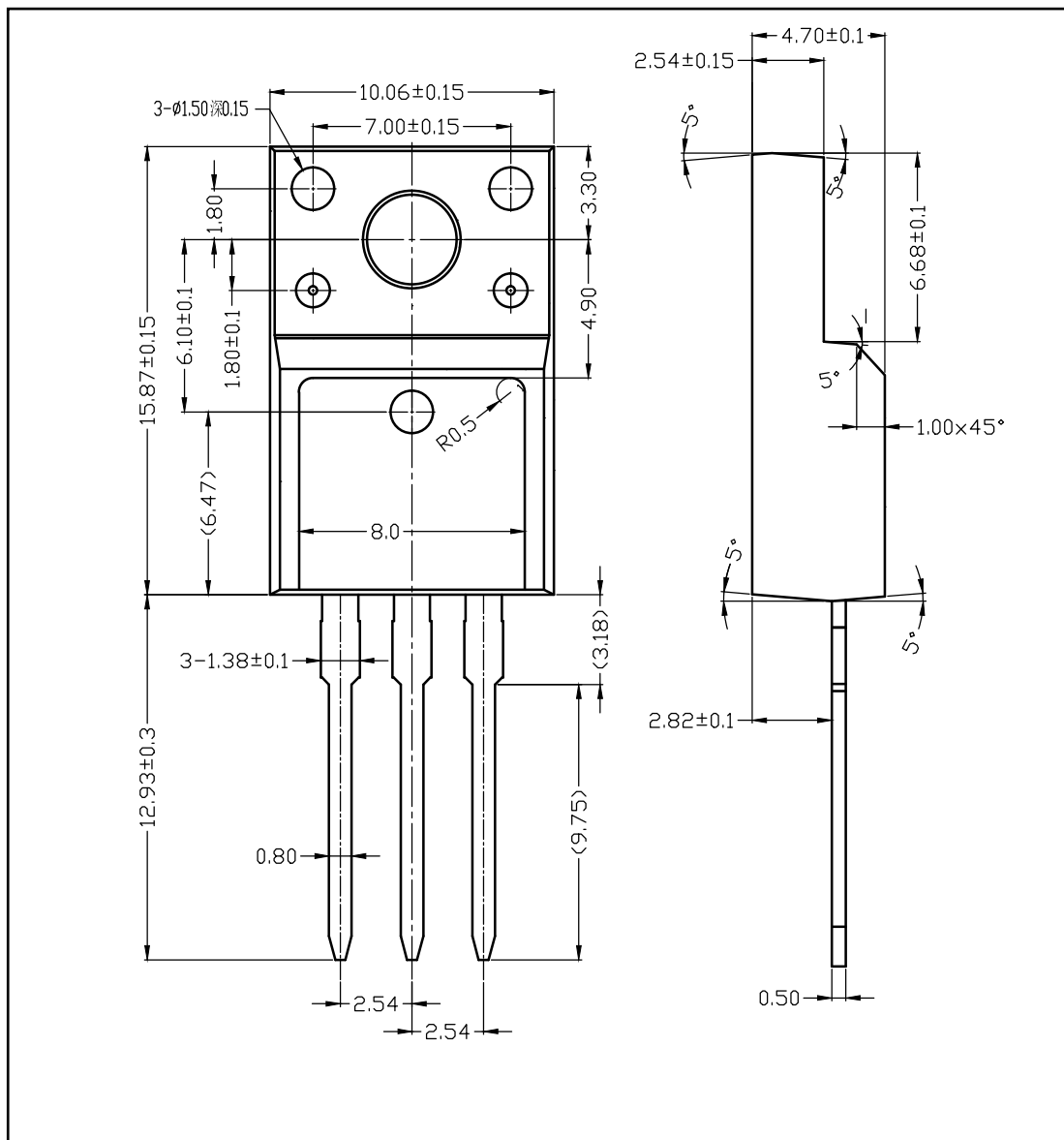


Figure 11. Typ. Coss Stored Energy

■ TO-220F-3L PACKAGE OUTLINE DIMENSIONS



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