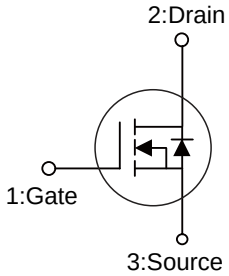
■ PRODUCT CHARACTERISTICS

V_{DSS}	750V
$R_{DS(ON)}$Typ(@V_{GS}=18V)	120mΩ
Qg@typ	15.3nC
I_D	28A

Symbol



■ APPLICATIONS

*Switch Mode Power Supplies
*High Voltage DC/DC Converters
*Battery Chargers
*Motor Drivers

TO-220F

■ FEATURE

*Low On-Resistance With High Blocking Voltage
*Low Capacitances With High -Speed Switching
*Low Reverse Recovery(Qrr)
*Easy to Parallel and Simple to Drive

■ ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT75CL160HF	TO-220F	50 pieces/Tube

■ ABSOLUTE MAXIMUM RATINGS(T_C=25°C,unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	750	V
Gate-Source Voltage	V_{GSS}	-10/+22	V
Recommended Operation Voltage Of Gate to Source	V_{GSOP}	0/+18	V
Drain Current Continuous(T_C=25°C)	I_D	19.5	A
Drain Current Continuous(T_C=175 °C)	I_D	13.5	A
Drain Current Pulsed(T_C=25°C)	I_{DM}	34	A
Power Dissipation	P_D	40	W
Junction Temperature	T_J	+175	°C
Storage Temperature	T_{STG}	-55~ +175	°C

■ THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Case	R_{thJC}	3.75	°C/W

■ ELECTRICAL CHARACTERISTICS (T_C=25°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=100μA	750	-	-	V
Drain to Source Leakage Current	I_{DSS}	V_{DS}=750V,V_{GS}=0V	-	-	10	μA
Gate to Source Forward Leakage	I_{GSS}	V_{DS}=0V, V_{GS}=18V	-	-	250	nA
On characteristics						
Drain to Source On-Resistance	$R_{DS(ON)}$	V_{GS}=15V,I_D=7A	-	162	200	mΩ
		V_{GS}=18V,I_D=7A	-	120	160	mΩ
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS},I_D=10mA	2.7	3.9	4.5	V
Dynamic characteristics						
Gate capacitance	R_g	V_{AC}=25mV ,f=1.0MHz	-	31	-	Ω
Input Capacitance	C_{iss}	V_{DS}=40V,V_{GS}=0V f=1.0MHz	-	451	-	pF
Output Capacitance	C_{oss}		-	89	-	pF
Reverse Transfer Capacitance	C_{rss}		-	3	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	$t_{d(ON)}$	I_D=7A, V_{DS}=400V R_G=2.2Ω ,V_{GS}=0/15V	-	29.2	-	ns
Rise Time	t_r		-	11.7	-	ns
Turn-off Delay Time	$t_{d(OFF)}$		-	46.1	-	ns
Fall Time	t_f		-	16.5	-	ns
Total Gate Charge	Q_g	I_D=7A, V_{DS}=400V V_{GS}=0/15V	-	15.3	-	nC
Gate to Source Charge	Q_{gs}		-	5.5	-	nC
Gate to Drain("Miller") Charge	Q_{gd}		-	2.6	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I_S		-	-	19.5	A
Diode Forward Voltage	V_{SD}	I_{SD}=7A, V_{GS}=0V	-	3.3	-	V
Reverse Recovery Time	t_{rr}	I_{SD}=7 A, T_J=25 °C dI /dt=2000A/μs	-	68	-	ns
Reverse Recovery Charge	Q_{rr}		-	26	-	nC

■ TYPICAL CHARACTERISTICS(Cont.)

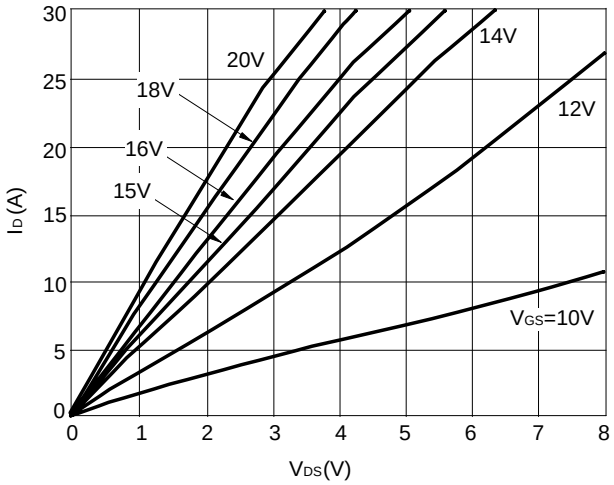


Figure 1: Output Characteristics(T_J=25°C)

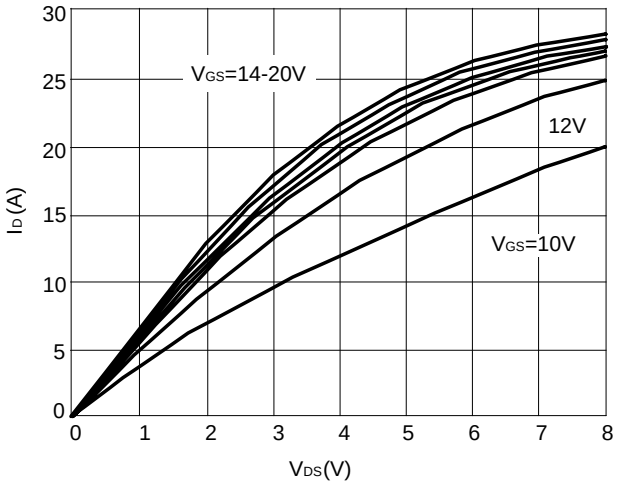


Figure 2: Output Characteristics(T_J=175°C)

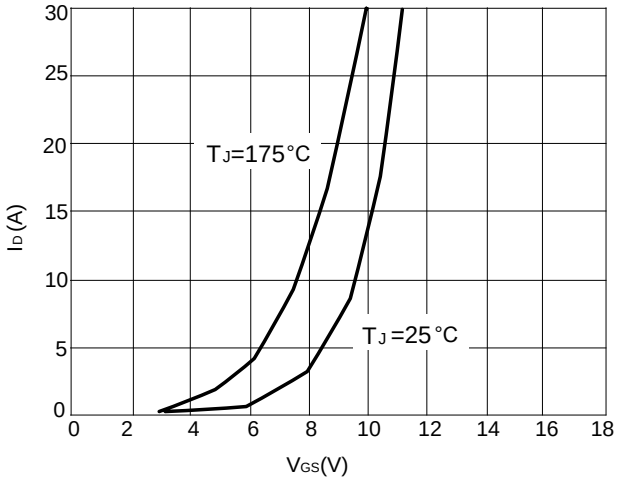


Figure 3: Typical Transfer Characteristics

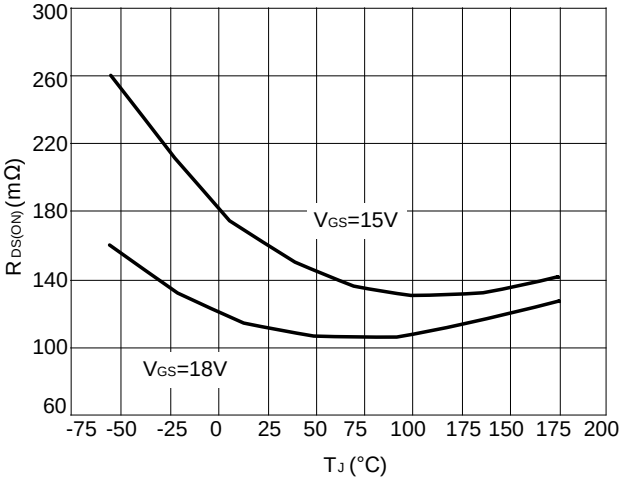


Figure 4: Typical On-Resistance vs Temperature

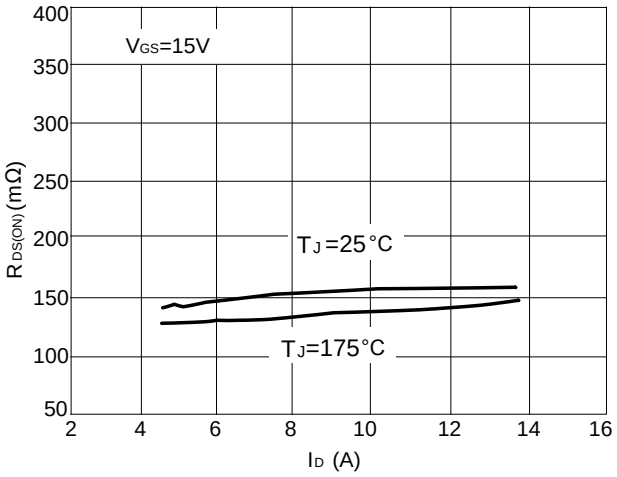


Figure 5: Normalized On-Resistance vs. Drain Current For Various Temperature

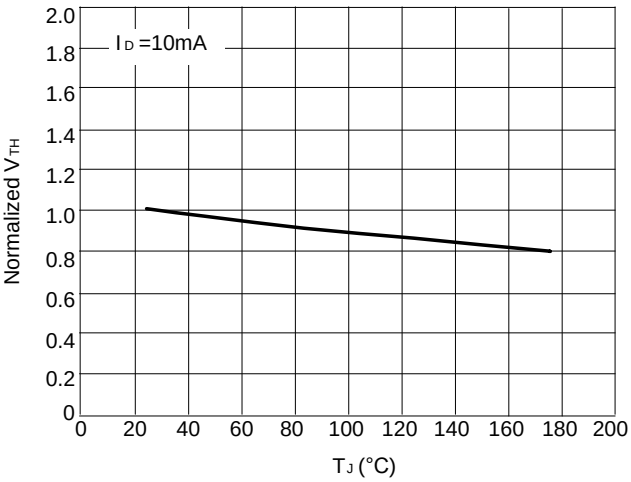


Figure 6: Normalized Threshold Voltage vs. Temperarure

■ TYPICAL CHARACTERISTICS(Cont.)

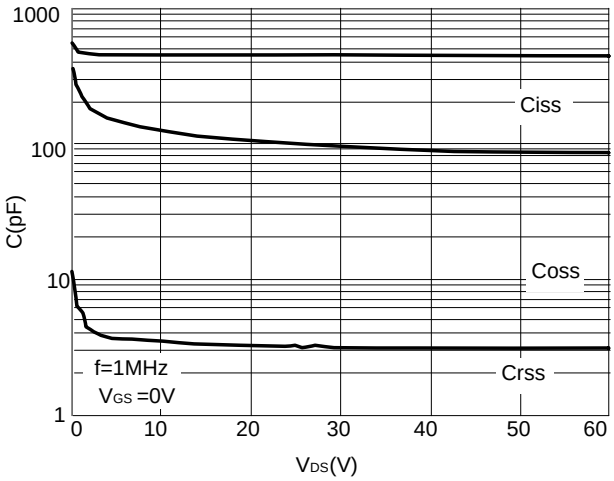


Figure 7: Capacitance vs. Drain-Source Voltage

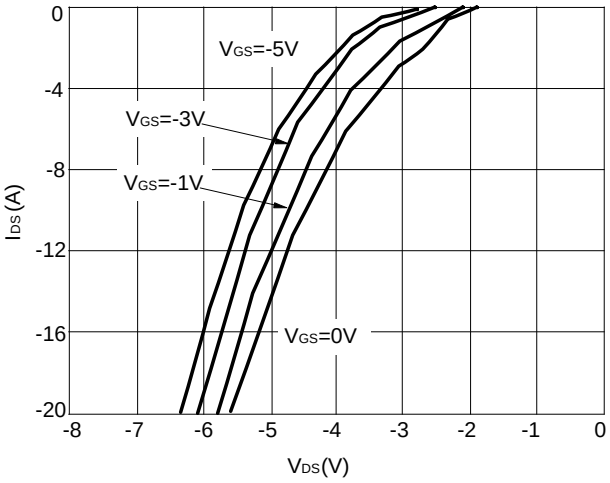


Figure 8: Body Diode Characteristics

■ TO-220F PACKAGE OUTLINE DIMENSIONS