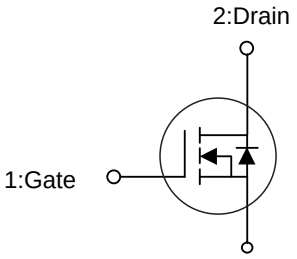
■ PRODUCT CHARACTERISTICS

V_{DSS}	-30V
$R_{DS(ON)}$ Typ(@V_{GS}=-10V)	5mΩ
$R_{DS(ON)}$ Typ(@V_{GS}=-4.5V)	6.6mΩ
I_D	-80A

Symbol



■ APPLICATIONS

* Electronic lamp ballasts based on half bridge
* Load Switching,Quick/Wirelss Charge.
* Motor Driving

3:Source

TO-252

■ FEATURE

* Low Gate Charge
* Pb-Free Lead Plating

■ ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT80P03D	TO-252	2500 pieces/Reel

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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	-30	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current Continuous(@V_{GS}=-10V ,T_A=25°C)	I_D	-80	A
Drain Current Pulsed	I_{DM}	-320	A
Avalanche Energy	E_{AS}	380	mJ
Power Dissipation	P_D	65	W
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

■ THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Case	R_{thJC}	1.92	°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=-250μA	-30	-	-	V
Drain to Source Leakage Current	I_{DSS}	V_{DS}=-30V,V_{GS}=0V	-	-	-1	μA
Gate to Source Forward Leakage	$I_{GSS(F)}$	V_{GS}=+20V,V_{DS}=0V	-	-	100	nA
Gate to Source Reverse Leakage	$I_{GSS(R)}$	V_{GS}=-20V ,V_{DS}=0V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V,I_D=-20A	-	5	6	mΩ
		V_{GS}=-4.5V,I_D=-10A	-	6.6	8	mΩ
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS},I_D=-250μA	-1	-1.6	-2.5	V
Dynamic characteristics						
Gate capacitance	R_g	V_{GS}=0V,V_{DS}=0V ,f=1.0MHz	-	11	-	Ω
Forward Transconductance	g_{fs}	V_{DS}=-10V,I_D=-3A	-	17	-	S
Input Capacitance	C_{iss}	V_{DS}=-20V,V_{GS}=0V f=1.0MHz	-	3300	-	pF
Output Capacitance	C_{oss}		-	421	-	pF
Reverse Transfer Capacitance	C_{rss}		-	318	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	$t_{d(ON)}$	V_{GS}=-10V,V_{DS}=-15V, I_D=-30A,R_G=2.4Ω	-	17	-	ns
Rise Time	t_r		-	143	-	ns
Turn-off Delay Time	$t_{d(OFF)}$		-	98	-	ns
Fall Time	t_f		-	106	-	ns
Total Gate Charge	Q_g	I_D=-30A, V_{DS}=-15V V_{GS}=-10V	-	125	-	nC
Gate to Source Charge	Q_{gs}		-	26	-	nC
Gate to Drain("Miller") Charge	Q_{gd}		-	20	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I_S		-	-	-80	A
Maximum Pulsed Current(Body Diode)	I_{SM}		-	-	-320	A
Diode Forward Voltage	V_{SD}	I_{SD}=-1A, V_{GS}=0V	-	-0.7	-1.2	V
Reverse Recovery Time	t_{rr}	I_{SD}=-20A, T_J=25°C dI/dt=100A/μs	-	55	-	ns
Reverse Recovery Charge	Q_{rr}		-	73	-	nC

■ TYPICAL CHARACTERISTICS

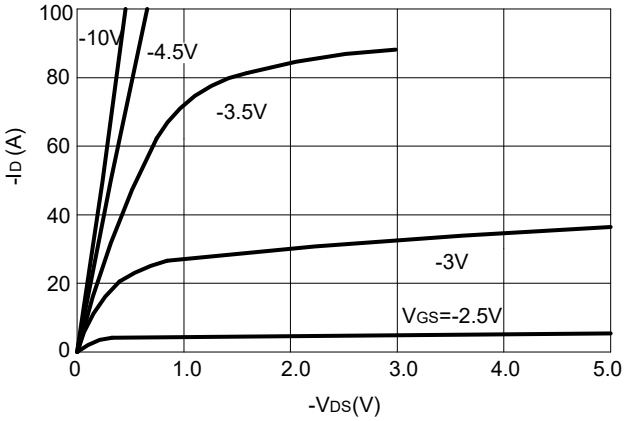


Figure 1: Output Characteristics

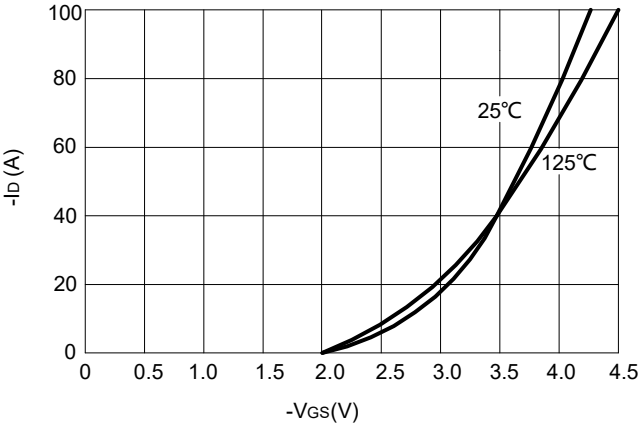


Figure 2: Typical Transfer Characteristics

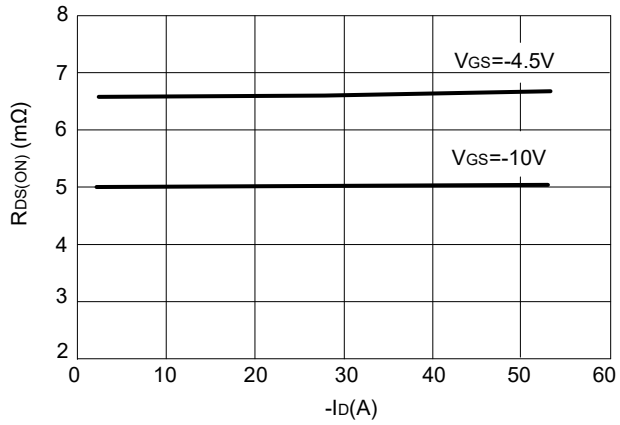


Figure 3: On-resistance vs. Drain Current

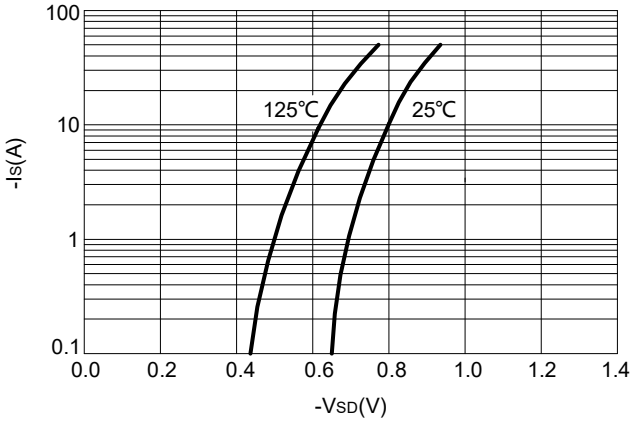


Figure 4: Body Diode Characteristics

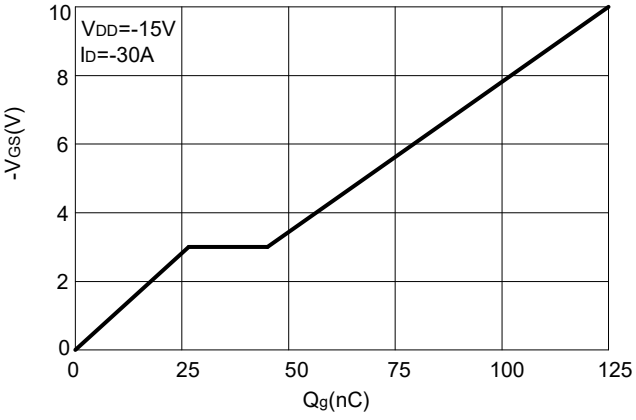


Figure 5: Gate Charge Characteristics

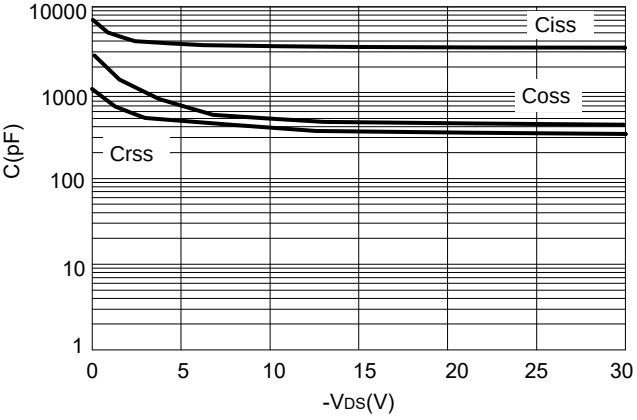


Figure 6: Capacitance Characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

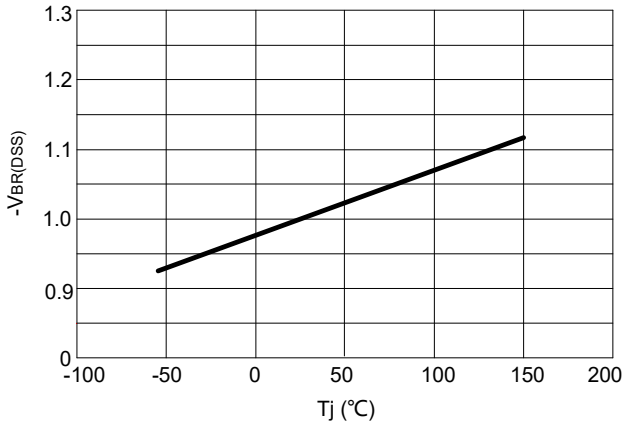


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

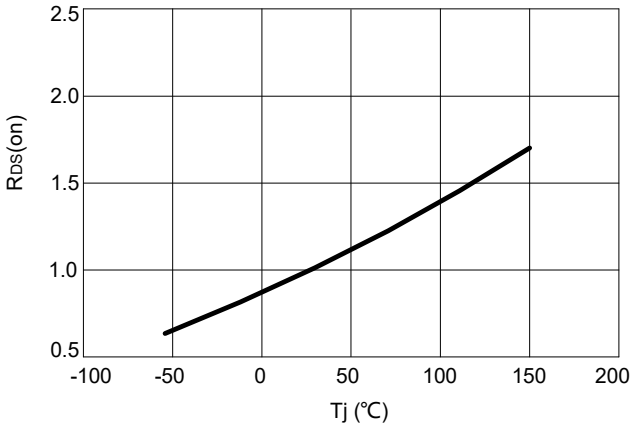


Figure 8: Normalized on Resistance vs. Junction Temperature

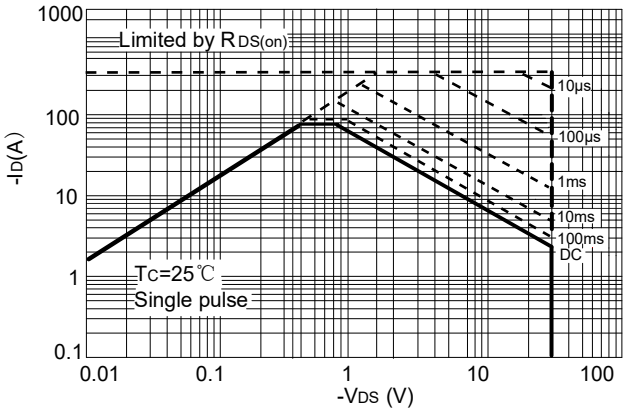


Figure 9: Maximum Safe Operating Are

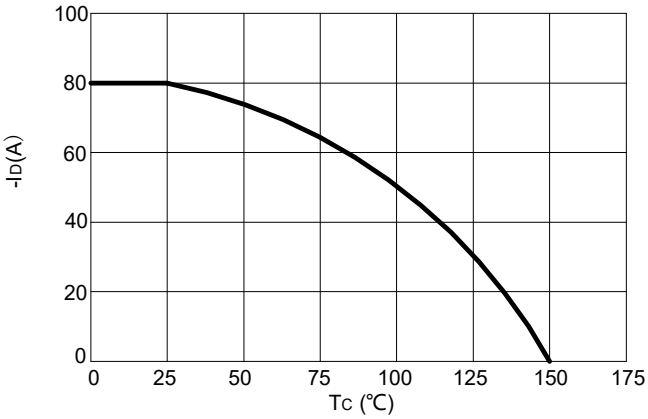


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

■ TO-252 PACKAGE OUTLINE DIMENSIONS