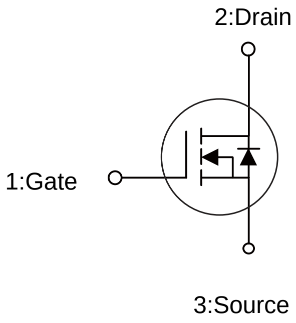
■ PRODUCT CHARACTERISTICS

V_{DSS}	30V
$R_{DS(ON)}$ Typ(@V_{GS}=10V)	9mΩ
$R_{DS(ON)}$ Typ(@V_{GS}=4.5V)	14mΩ
I_D	20A

Symbol



■ APPLICATIONS

* Electronic lamp ballasts based on half bridge

* Load Switching,Quick/Wirelss Charge.

* Motor Driving

■ FEATURE

* Low Gate Charge

* Pb-Free Lead Plating

TO-252

■ ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT20N03BD	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	20	A
Drain Current Continuous(@V_{GS}=10V ,T_A=100°C)	I_D	14.1	A
Drain Current Pulsed	I_{DM}	80	A
Avalanche Energy *	E_{AS}	49	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

Note: * EAS condition: T_J=25°C ,V_{DS}=20V,V_G=10V ,L=0.5mH,R_g =25Ω

■ 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=10A	-	9	12	mΩ
		V_{GS}=4.5V,I_D=10A	-	14	17	mΩ
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS},I_D=250µA	1	1.45	2.5	V
Dynamic characteristics						
Gate capacitance	R_g	V_{GS}=0V,V_{DS}=0V ,f=1.0MHz	-	2.0	-	Ω
Forward Transconductance	g_{fs}	V_{DS}=10V,I_D=3A	-	8	-	S
Input Capacitance	C_{iss}	V_{DS}=20V,V_{GS}=0V f=1.0MHz	-	734	-	pF
Output Capacitance	C_{oss}		-	69	-	pF
Reverse Transfer Capacitance	C_{rss}		-	62	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	$t_{d(ON)}$	V_{GS}=10V, V_{DS}=15V, I_D=10A ,R_G=3Ω	-	5	-	ns
Rise Time	t_r		-	12	-	ns
Turn-off Delay Time	$t_{d(OFF)}$		-	19	-	ns
Fall Time	t_f		-	6	-	ns
Total Gate Charge	Q_g	I_D=10 A, V_{DS}=15V V_{GS}=10V	-	17	-	nC
Gate to Source Charge	Q_{gs}		-	2.8	-	nC
Gate to Drain("Miller") Charge	Q_{gd}		-	3.9	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I_S		-	-	20	A
Maximum Pulsed Current(Body Diode)	I_{SM}		-	-	80	A
Diode Forward Voltage	V_{SD}	I_{SD}=1A, V_{GS}=0V	-	0.75	1.2	V
Reverse Recovery Time	t_{rr}	I_{SD}=10A, T_J=25°C dI/dt=100A/µs	-	18	-	ns
Reverse Recovery Charge	Q_{rr}		-	10	-	nC

■ TYPICAL CHARACTERISTICS

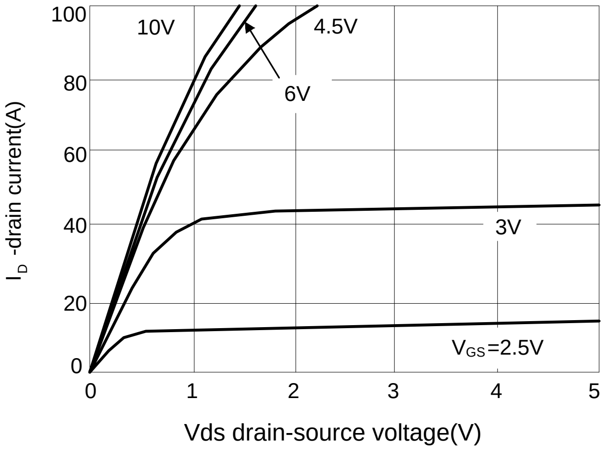


Fig.1 output characteristics

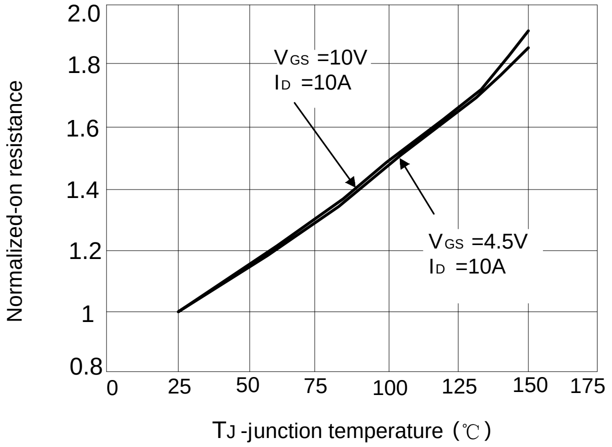


Figure.2 Rdson-junction temperature

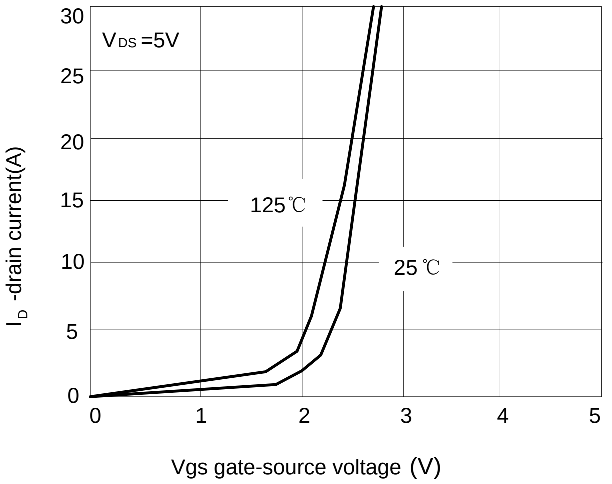


Figure.3 Transfer characteristics

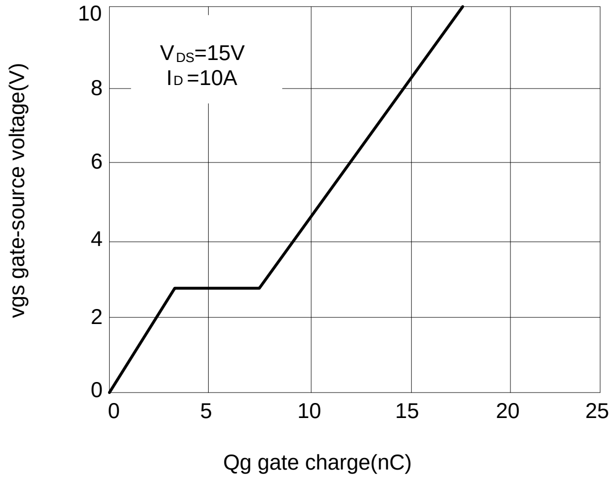


Figure.4 Gare charge

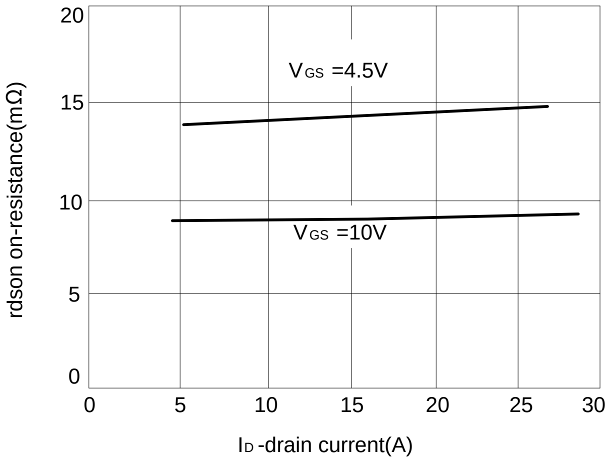


Figure.5 Rdson-drain current

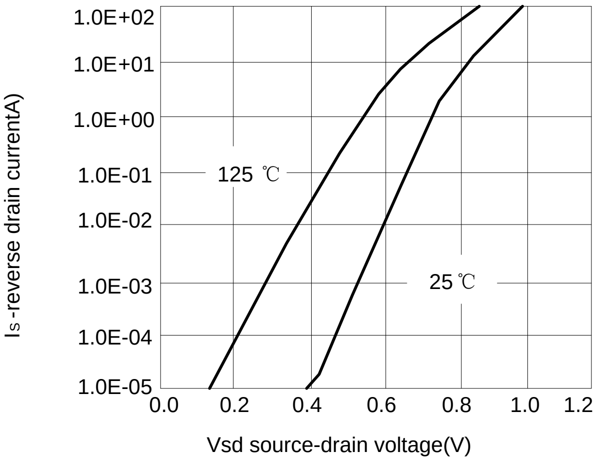


Figure.6 Source-drain diode forward

■ TYPICAL CHARACTERISTICS(Cont.)

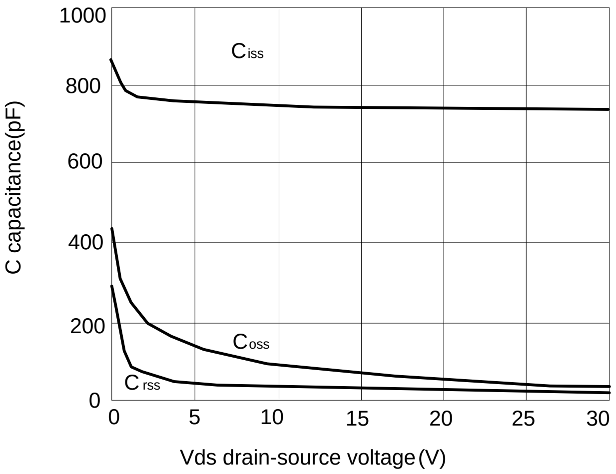


Figure.7 Capacitance vs vds

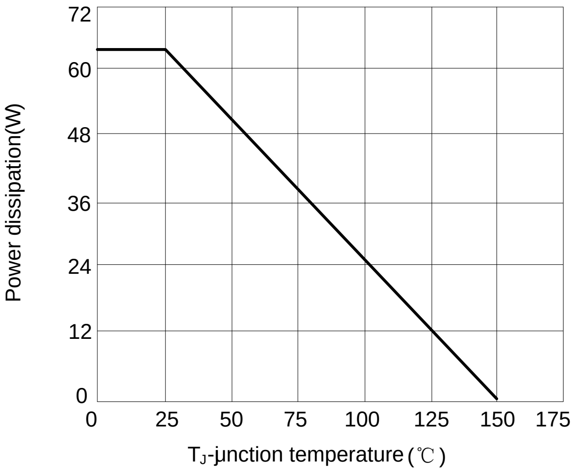


Figure.8 Power de-rating

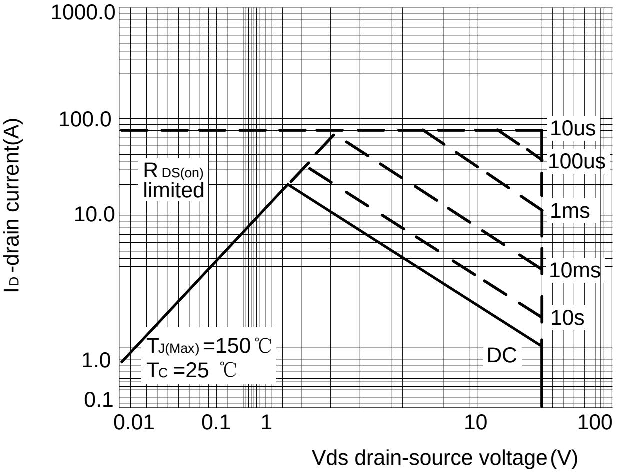


Figure.9 Safe operation area

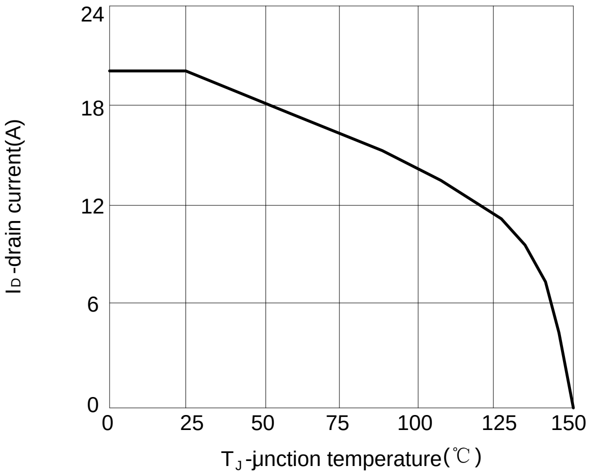


Figure.10 Id current-junction terperature

■ TO-252 PACKAGE OUTLINE DIMENSIONS