

PRODUCT CHARACTERISTICS

V_{DSS}	60V
$R_{DS(ON)}$ Typ(@ $V_{GS}=10V$)	1.5m Ω
I_D	195A

APPLICATIONS

- * Motor Control
- * High Performance SMPS
- * DC/DC Coverter

FEATURE

- * Low Gate Charge
- * Ultra-low $R_{DS(ON)}$



ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT6113HE	TO-263	800 pieces/Reel

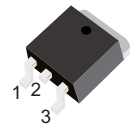
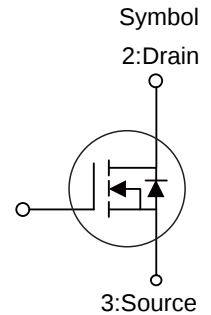
ABSOLUTE MAXIMUM RATINGS($T_c=25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current Continuous(@ $V_{GS}=10V, T_c=25^{\circ}C$)	I_D	195	A
Drain Current Pulsed	I_{DM}	780	A
Avalanche Energy *	E_{AS}	1156	mJ
Power Dissipation	P_D	123	W
Junction Temperature	T_J	+150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}C$

THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Case	R_{thJC}	1.02	$^{\circ}C/W$

Note: * EAS condition: $T_J=25^{\circ}C, V_{DD}=30V, V_G=10V, L=0.5mH, R_g=25\Omega$

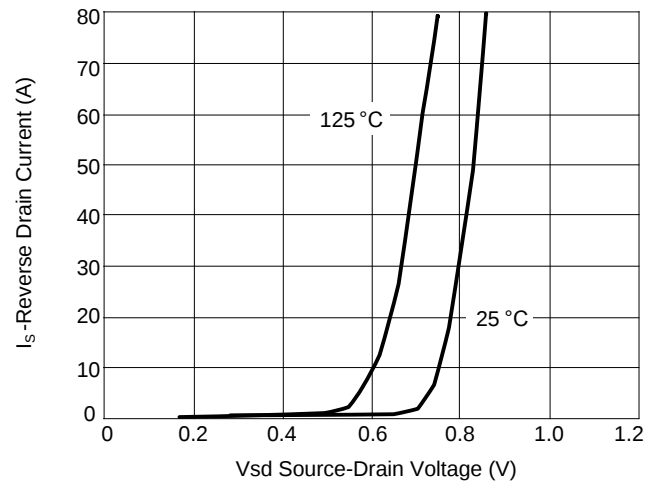
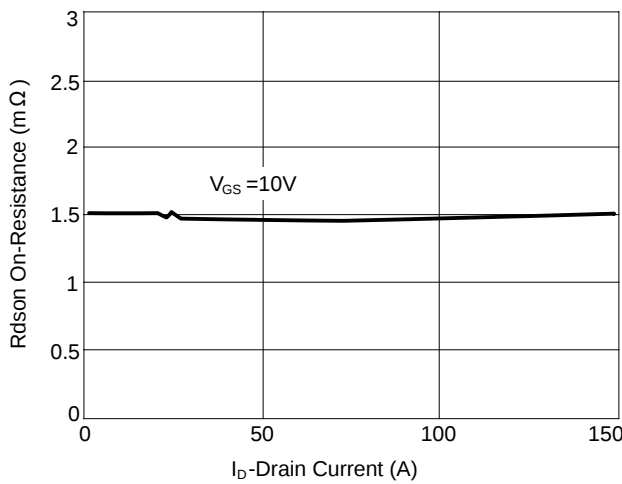
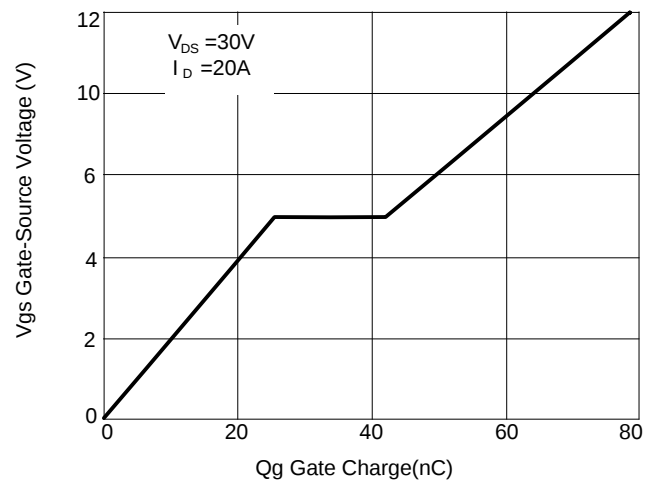
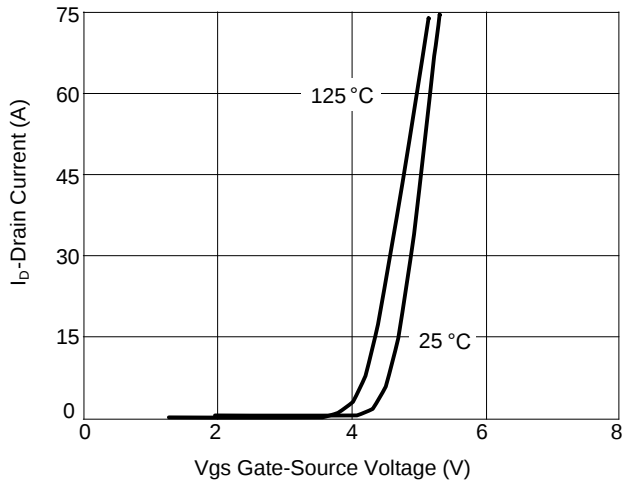
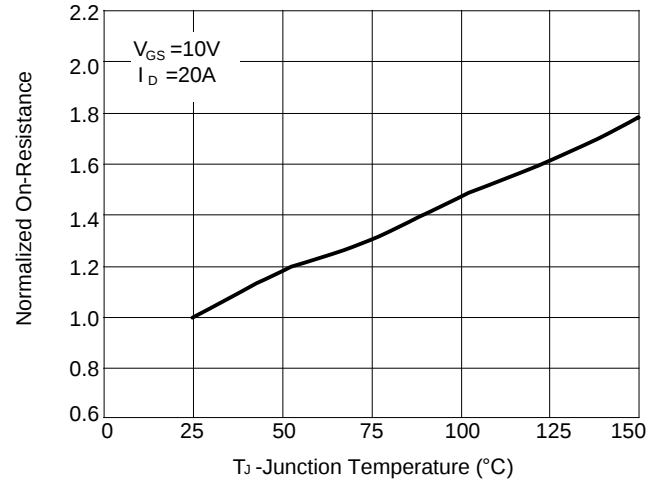
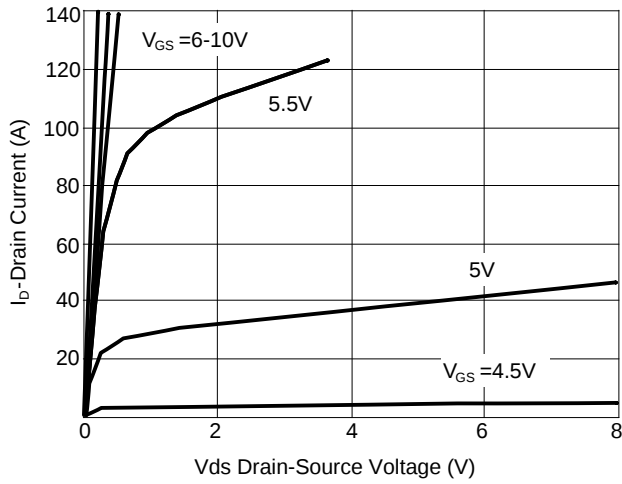


TO-263

■ ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$, 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	60	-	-	V
Drain to Source Leakage Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	μA
Gate to Source Forward Leakage	I _{GSS(F)}	V _{DS} =0V, V _{GS} =+20V	-	-	100	nA
Gate to Source Reverse Leakage	I _{GSS(R)}	V _{DS} =0V, V _{GS} =-20V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A	-	1.5	1.8	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	2	3.1	4	V
Dynamic characteristics						
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V ,f=1.0MHz	-	2.1	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =5 A	-	26	-	S
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V f=1.0MHz	-	6600	-	pF
Output Capacitance	C _{oss}		-	1404	-	pF
Reverse Transfer Capacitance	C _{rss}		-	39	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	I _D =20A, V _{DS} =30V R _G =4.7 Ω , V _{GS} =10V	-	8	-	ns
Rise Time	t _r		-	10	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	60	-	ns
Fall Time	t _f		-	18	-	ns
Total Gate Charge	Q _g	I _D =20A, V _{DS} =30V V _{GS} =10V	-	79	-	nC
Gate to Source Charge	Q _{gs}		-	25.5	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	16	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _S		-	-	195	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	780	A
Diode Forward Voltage	V _{SD}	I _{SD} =1A, V _{GS} =0V	-	0.68	1.2	V
Reverse Recovery Time	t _{rr}	I _{SD} =20A, T _j =25 °C	-	60	-	ns
Reverse Recovery Charge	Q _{rr}	dI /dt=100A/μs	-	85	-	nC

■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)

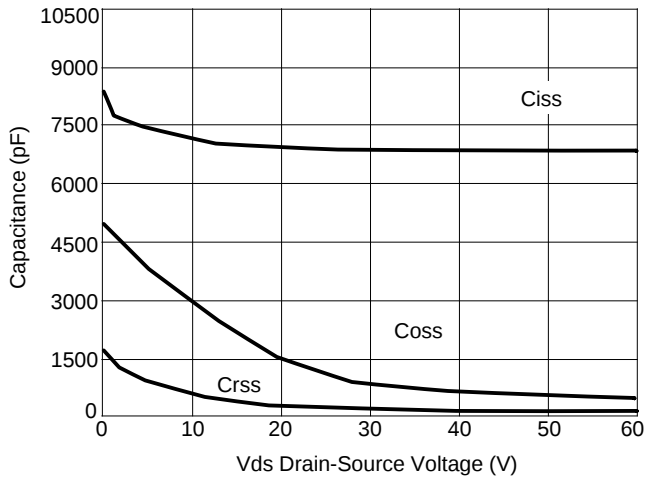


Figure 7: Capacitance vs Vds

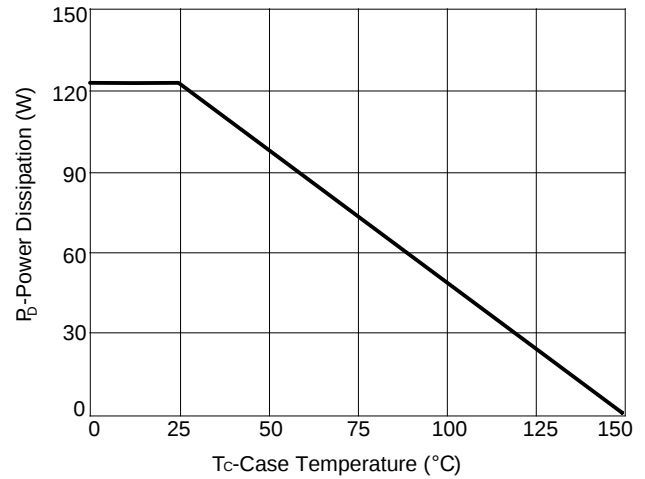


Figure 8: Power De-rating

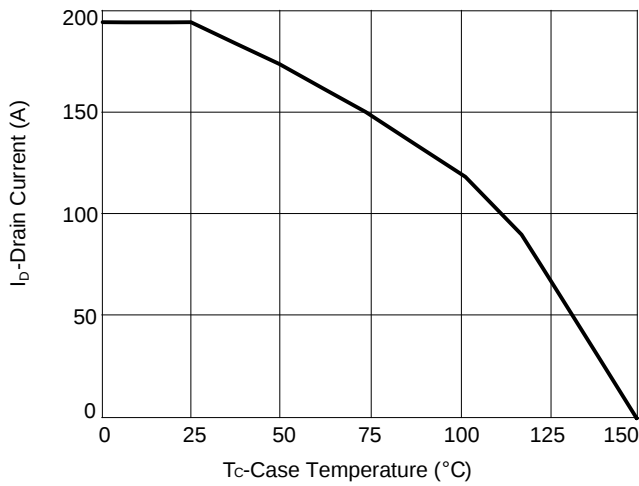


Figure 9: Current De-rating

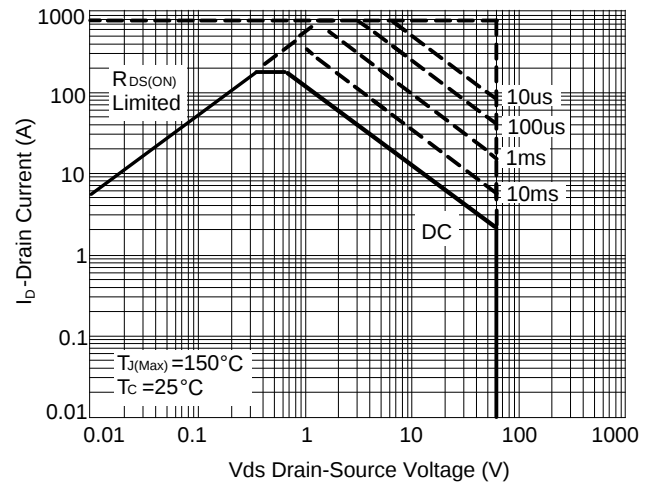


Figure 10: Safe Operation Area

■ TO-263 PACKAGE OUTLINE DIMENSIONS

