MB0E200A

40V/200A N-Channel MOSFET

Features

- Excellent package for good heat dissipation
- Ultra low gate charge
- Low reverse transfer capacitance
- Fast switching capability
- Avalanche energy specified

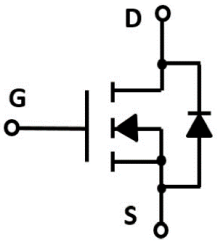
Application

- Power switching application

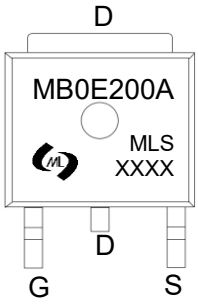
Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
40V	1.7mΩ@10V	200A
	2.0mΩ@4.5V	

TO-263 top view



Schematic diagram



MB0E200A : Device code
XXXX : Code

Marking and pin assignment

Pb-Free RoHS Halogen-Free

Absolute Maximum Ratings (TA=25℃unless otherwise noted)				
Symbol	**Parameter**		**Rating**	**Unit**
Common Ratings (TC=25°C Unless Otherwise Noted)				
V_{DS}	Drain-Source Breakdown Voltage		40	V
V_{GS}	Gate-Source Voltage		±20	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-50 to 155	°C
I_S	Diode Continuous Forward Current		200	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested		750	A
I_D	Continuous Drain Current	Tc=25°C	200	A
P_D	Maximum Power Dissipation	Tc=25°C	231	W

Ordering Information (Example)						
Type	**Package**	**Marking**	**Minimum Package(pcs)**	**Inner Box Quantity(pcs)**	**Outer Carton Quantity(pcs)**	**Delivery Mode**
MB0E200A	TO-263	MB0E200A	800	800	4,000	13"reel

Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	**Parameter**	**Condition**	**Min**	**Typ**	**Max**	**Unit**
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
$BV_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V，I_D=250μA	40	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=40V，V_{GS}=0V	--	--	1.0	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±20V，V_{DS}=0V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}，I_D=250μA	1.0	1.75	3	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS}=10V， I_D=75A	--	1.7	2.5	mΩ
		V_{GS}=4.5V，I_D=40A	--	2.0	3.0	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C_{ISS}	Input Capacitance	V_{DS}=25V，V_{GS}=0V，f=1MHz	--	15870	--	pF
C_{OSS}	Output Capacitance		--	1240	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	245	--	pF
Switching Characteristics						
Q_g	Total Gate Charge	V_{DD}=32V，I_D=75A，V_{GS}=5V	--	137	--	nC
Q_{gs}	Gate Source Charge		--	60.8	--	nC
Q_{gd}	Gate Drain Charge		--	52.6	--	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=20V，R_L=0.5Ω，V_{GS}=5V，R_G=12Ω	--	170	--	nS
t_r	Turn-on Rise Time		--	767	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	153	--	nS
t_f	Turn-Off Fall Time		--	95.4	--	nS
Source- Drain Diode Characteristics						
V_{SD}	Forward on voltage	Tj=25℃，Is=75A，	--	--	1.2	V

Typical Operating Characteristics

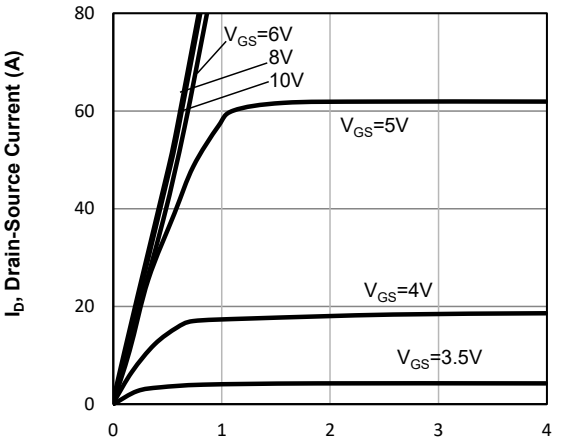


Fig1. Typical Output Characteristics

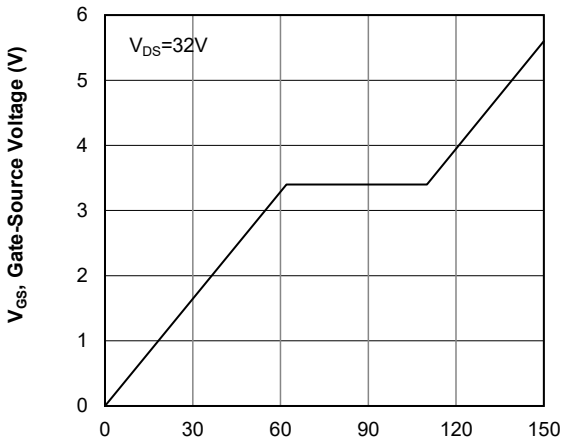


Fig2. Typical Gate Charge Vs.Gate-Source Voltage

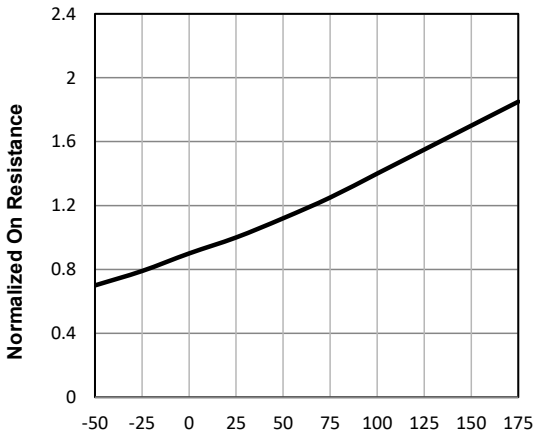


Fig3. Normalized On-Resistance Vs. Temperature

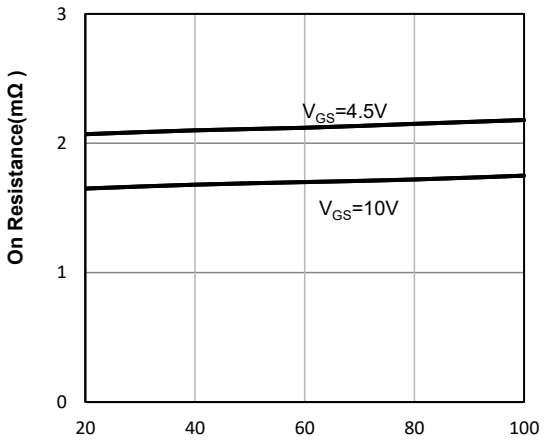


Fig4. On-Resistance Vs. Drain-Source Current

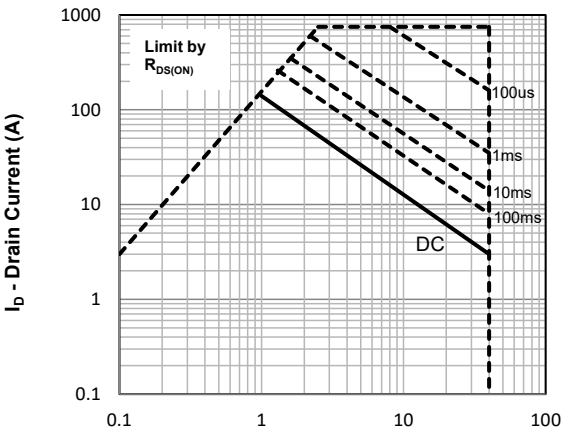


Fig5. Maximum Safe Operating Area

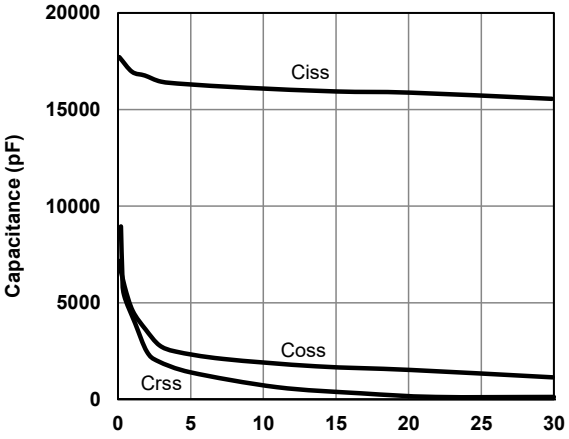
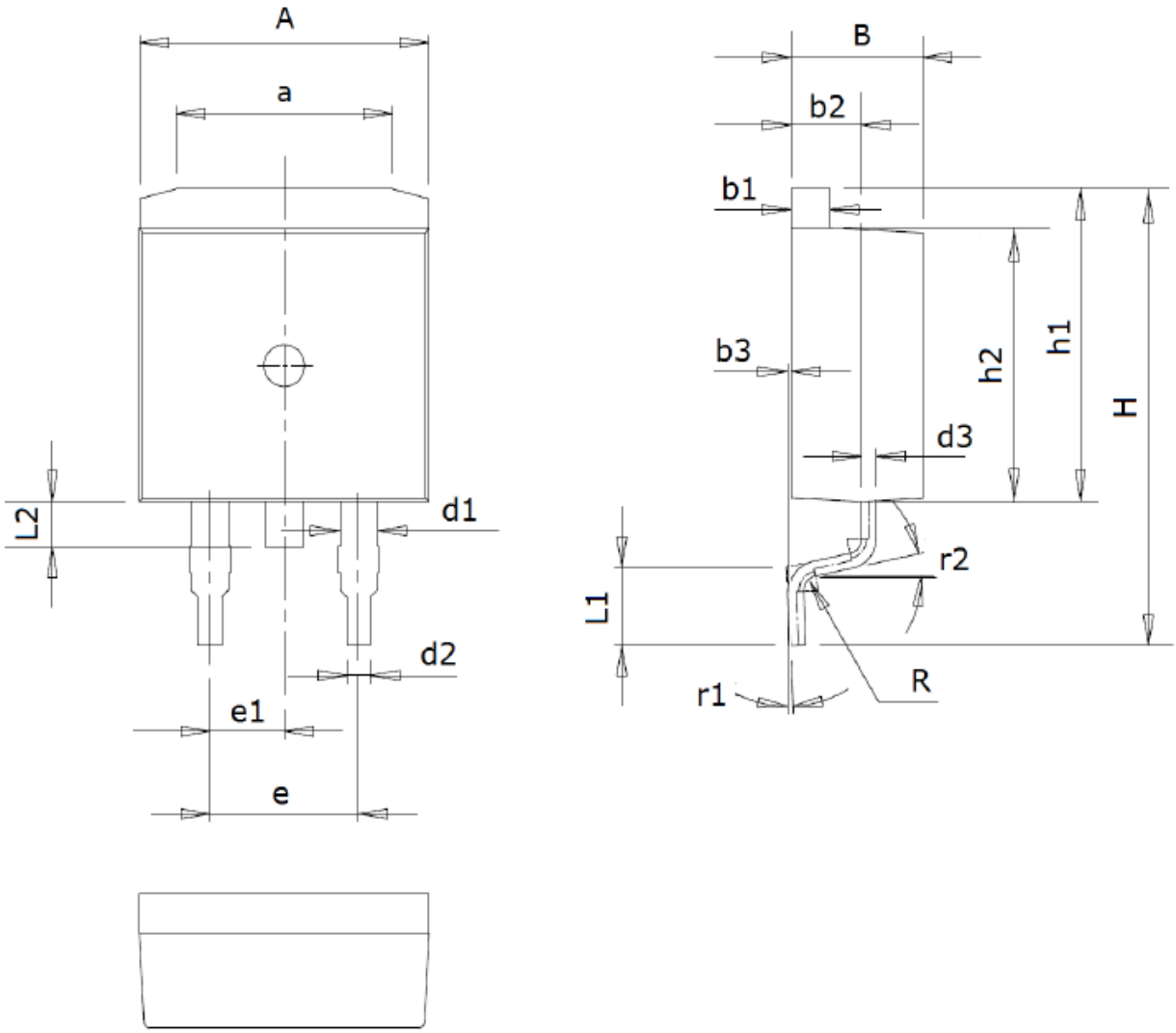


Fig6 Typical Capacitance Vs.Drain-Source Voltage

TO-263 Package information



Symbol	Dimensions in Millimeters(mm)		Symbol	Dimensions in Millimeters(mm)	
	Min	Max		Min	Max
A	9.700	10.300	e1	2.54TYP	
a	7.000	7.800	H	14.800	15.600
B	4.300	4.700	h1	10.200	10.700
b1	1.250	1.350	h2	8.900	9.400
b2	2.200	2.600	L1	2.400	2.900
b3	0.000	0.200	L2	1.300	1.800
d1	1.200	1.400	R	0.5TYP	
d2	0.700	0.900	r1	0°	8°
d3	0.400	0.600	r2	12°TYP	
e	5.08TYP				