MY1F160AG/MB1F160AG

150V/160A N-Channel MOSFET

Features

- Integrate fast recovery diode
- Fast switching
- Split gate trench MOSFET technology
- 100% avalanche tested
- Improved dv/dt capability

Application

- Switch Mode Power Supply (SMPS)
- Motor Controls
- Power Factor Correction (PFC)

Pb-Free RoHS Halogen-Free

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
150V	5.7mΩ@10V	160A

TO-220

TO-263

Absolute Maximum Ratings (TA=25℃unless otherwise note

Symbol	Parameter		Value		Unit
Common Ratings (TC=25°C Unless Otherwise Noted)			TO-220	TO-263	
V_{DS}	Drain-Source Breakdown Voltage		150		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	Tc=25°C	160		A
Mounted on Large Heat Sink					
I_{DM}	Pulse Drain Current Tested	Tc=25°C	480		A
I_D	Continuous Drain Current@GS=10V	Tc=25°C	160		A
P_D	Maximum Power Dissipation	Tc=25°C	230		W
E_{AS}	Single pulse avalanche energy(Notes1)		400		mJ

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MY1F160AG	TO-220	MY1F160AG	50	1,000	5,000	/
MB1F160AG	TO-263	MB1F160AG	800	/	/	/

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	150	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=150V，V_{GS}=0V	--	--	1.0	uA
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	2.4	3.0	3.6	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS}=10V， I_D=50A	--	5.7	7.2	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C_{ISS}	Input Capacitance	V_{DS}=75V，V_{GS}=0V， f=1MHz	--	6280	--	pF
C_{OSS}	Output Capacitance		--	470	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	9	--	pF
Switching Characteristics						
Q_g	Total Gate Charge	V_{DS}=75V，I_D=50A，V_{GS}=10V	--	75	--	nC
Q_{gs}	Gate Source Charge		--	25.3	--	nC
Q_{gd}	Gate Drain Charge		--	12.5	--	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=75V，I_D=50A，R_G=2.7Ω，V_{GS}=10V	--	4.4	--	nS
t_r	Turn-on Rise Time		--	24.6	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	38.1	--	nS
t_f	Turn-Off Fall Time		--	9.5	--	nS
Source- Drain Diode Characteristics						
V_{SD}	Forward on voltage	Tj=25℃，Is=50A，	--	--	1.2	V

Note：

1、L=0.5mH, V_{DD}=50V,V_{GS}=10V, R_G=25Ω, Starting T_J=25℃

Typical Operating Characteristics

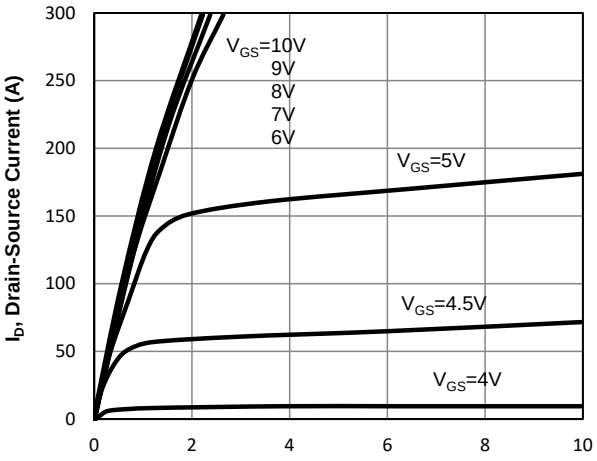


Fig1. Typical Output Characteristics

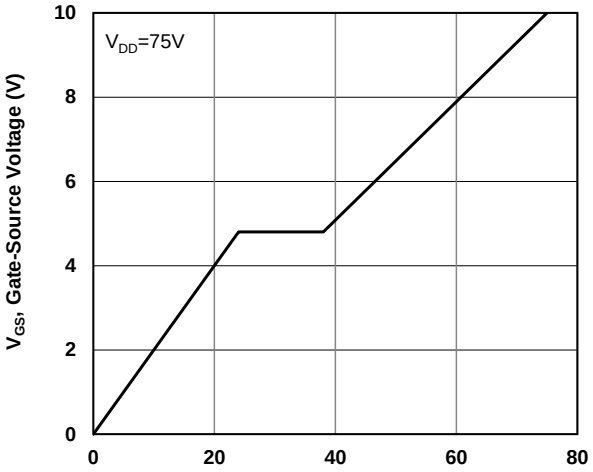


Fig2. Typical Gate Charge Vs.Gate-Source Voltage

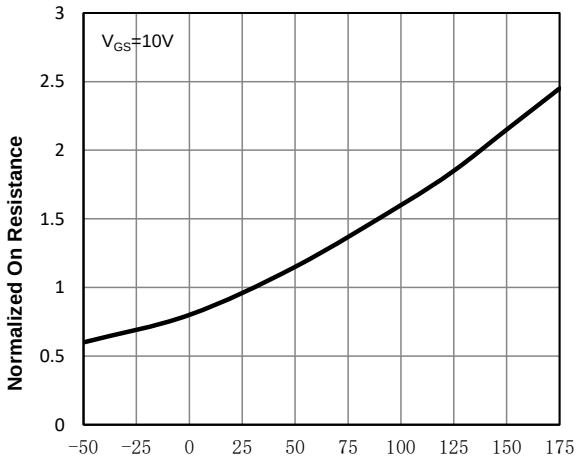


Fig3. Normalized On-Resistance Vs. Temperature

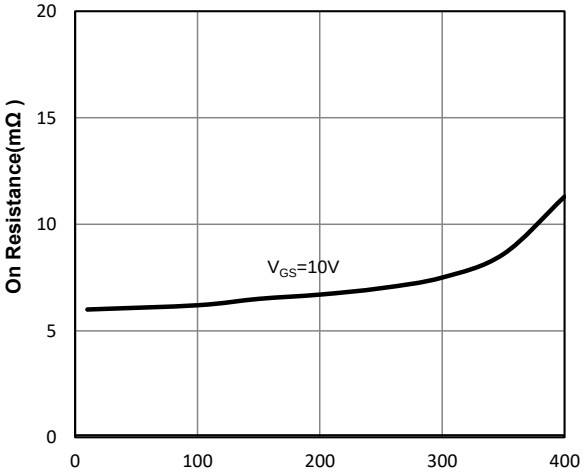


Fig4. On-Resistance Vs. Drain-Source Current

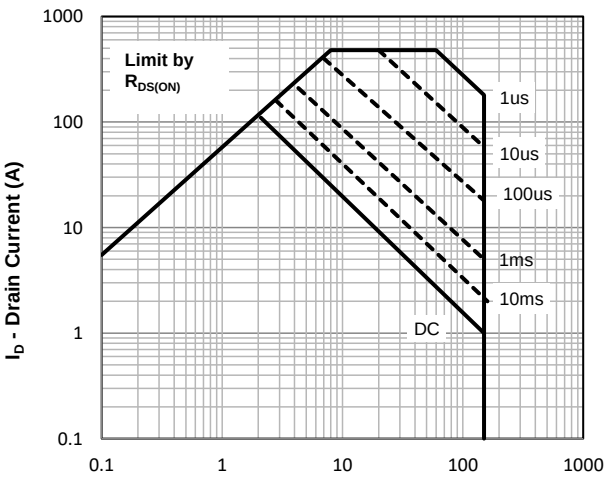


Fig5. Maximum Safe Operating Area

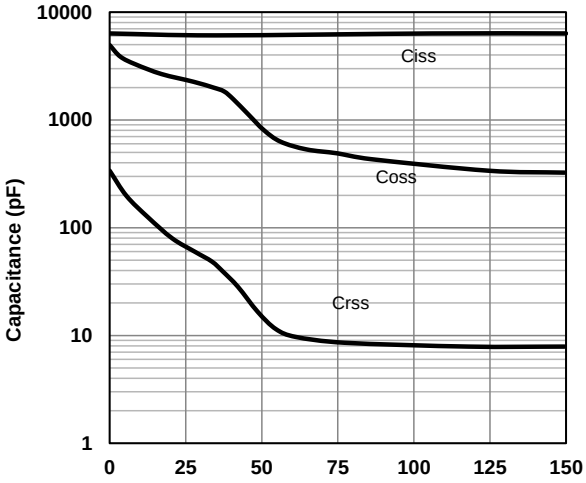
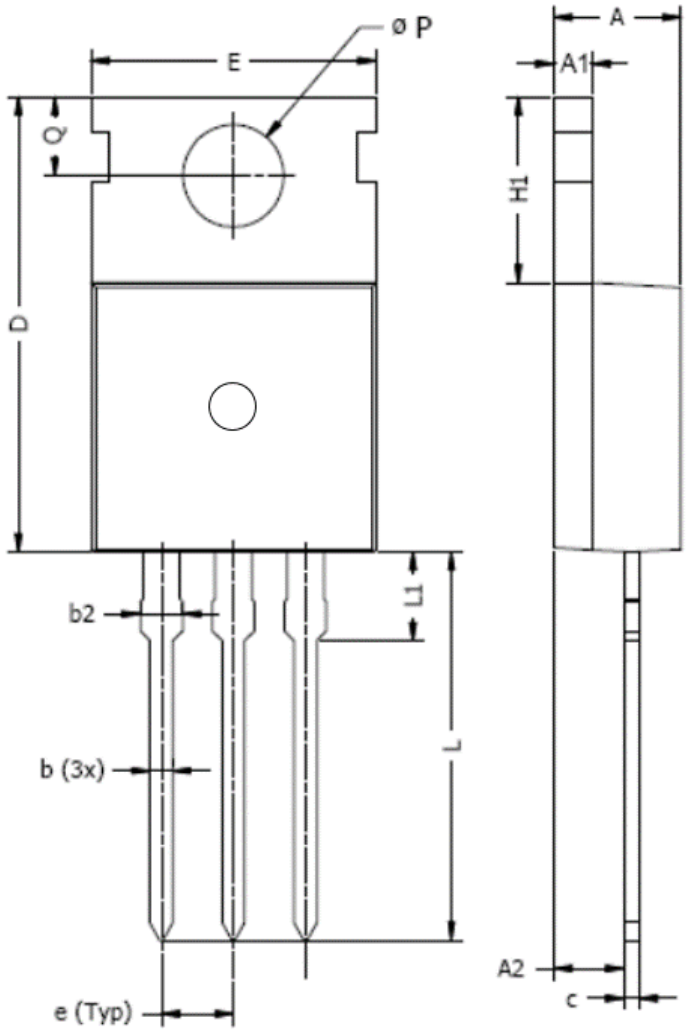


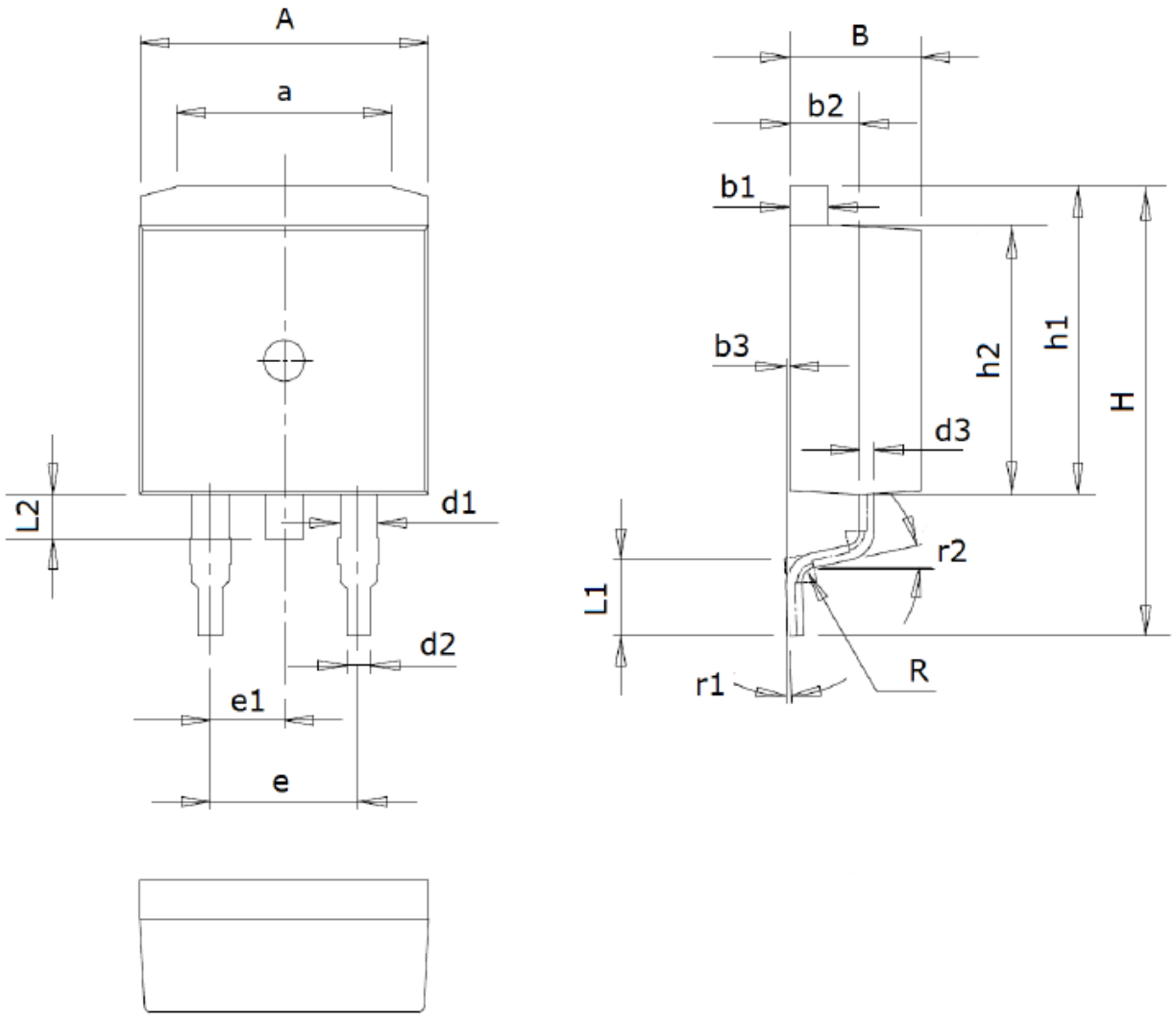
Fig6 Typical Capacitance Vs.Drain-Source Voltage

TO-220 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	3.600	4.800	0.142	0.189
A1	1.200	1.400	0.047	0.055
A2	2.030	2.900	0.080	0.114
b	0.400	1.000	0.016	0.039
b2	1.200	1.780	0.047	0.070
c	0.360	0.600	0.014	0.024
D	14.220	16.500	0.561	0.651
e	2.340	2.740	0.092	0.108
E	9.700	10.600	0.383	0.418
H1	5.840	6.850	0.230	0.270
L	12.700	14.700	0.501	0.580
L1	2.700	3.300	0.106	0.130
ØP	3.500	4.000	0.138	0.158
Q	2.540	3.400	0.100	0.134

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				