

Features

- Extremely low switching loss
- Exceptional on-resistance and maximum DC current capability

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
100V	10mΩ@10V	50A
	12mΩ@4.5V	

Application

- Power Management in Note book
- DC/DC Converter
- Load Switch
- LCD Display inverter

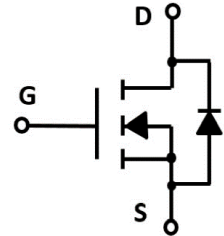


MU1A50AG: Device code
XXXX : Code

Marking and pin assignment



TO-252 top view



Schematic diagram



Halogen-Free

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
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Common Ratings (TC=25°C Unless Otherwise Noted)

V_{DS}	Drain-Source Breakdown Voltage	100	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	50	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	195	A
I_D	Continuous Drain Current	$T_C=25^{\circ}\text{C}$ 50	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}\text{C}$ 32	W
EAS	Single pulse Avalanche Energy ^{Note1}	16	mJ

Ordering Information (Example)

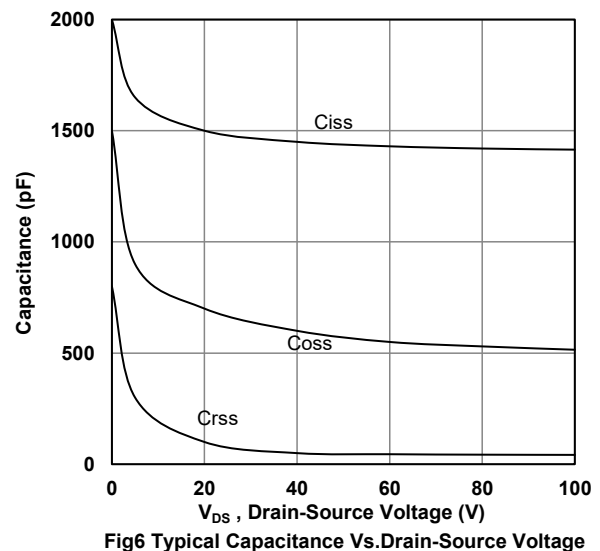
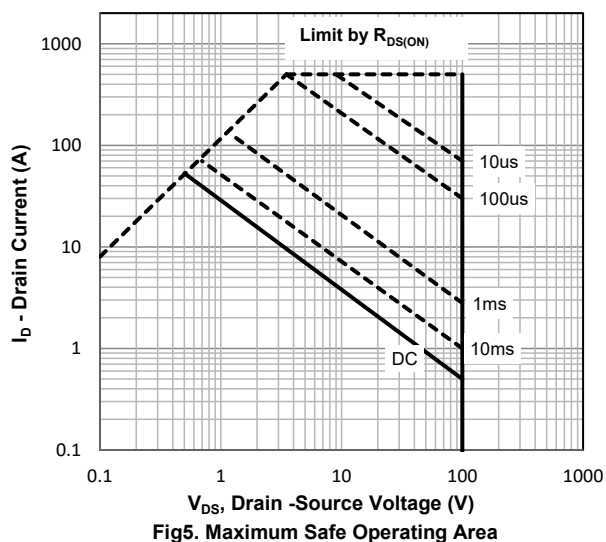
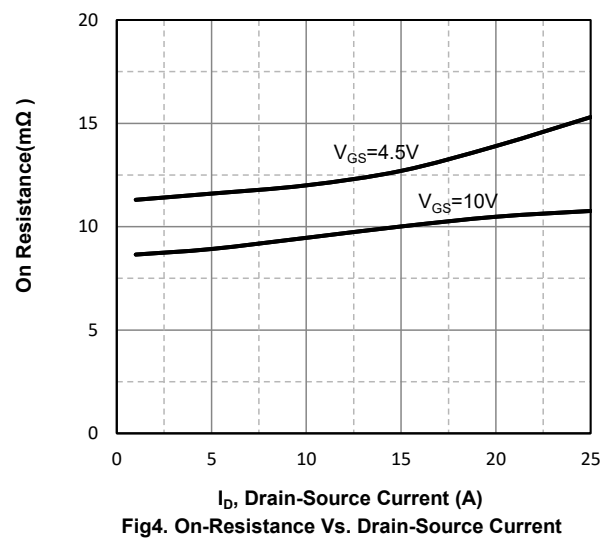
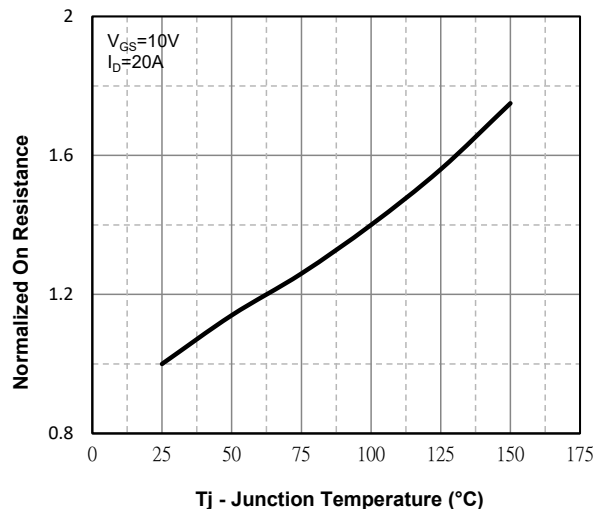
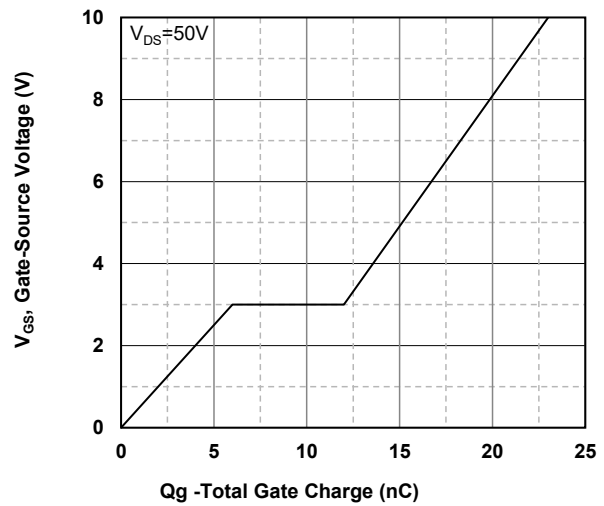
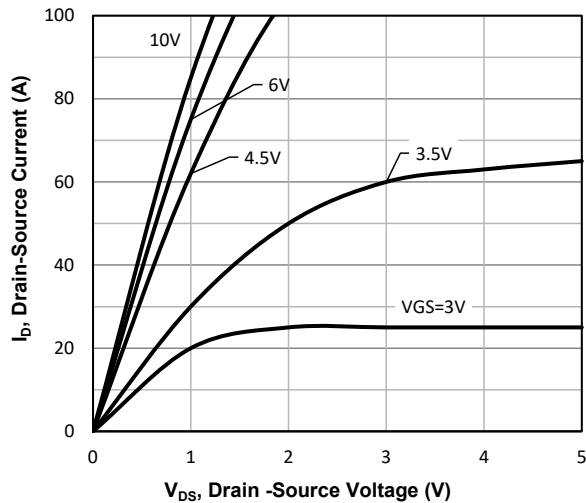
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MU1A50AG	TO-252	MU1A50AG	2,500	5,000	35,000	13"reel

Electrical Characteristics (T _J =25℃ unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T _J = 25℃ (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	100	–	–	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, V _{GS} =0V	–	–	1	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	0.8	1.2	1.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =25A	–	10	14	mΩ
		V _{GS} =4.5V, I _D =20A	–	12	17	mΩ
Dynamic Electrical Characteristics @ T _J = 25℃ (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1MHz	–	1450	–	pF
C _{OSS}	Output Capacitance		–	570	–	pF
C _{RSS}	Reverse Transfer Capacitance		–	45	–	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DD} =50V, I _D =20A, V _{GS} =10V	–	30	–	nC
Q _{gs}	Gate Source Charge		–	10	–	nC
Q _{gd}	Gate Drain Charge		–	6	–	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =50V, I _D =20A, V _{GS} =10V, R _G =3Ω	–	14	–	nS
t _r	Turn-on Rise Time		–	25	–	nS
t _{d(off)}	Turn-Off Delay Time		–	24	–	nS
t _f	Turn-Off Fall Time		–	8	–	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25℃, I _S =30A,	–	–	1.2	V

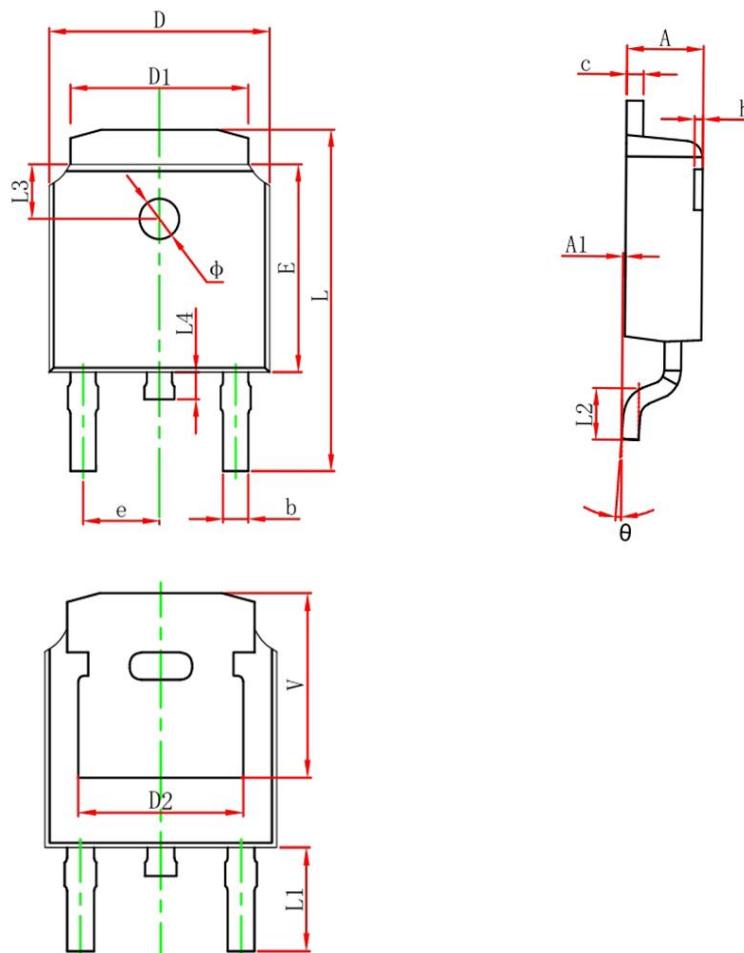
Note:

1: EAS condition: V_{DD}=50V, L=0.5mH, V_{GS}=10V, Starting T_J = 25°C

Typical Operating Characteristics



TO-252 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.450	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.386	0.406
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250 REF.		0.207 REF.	