

Features

- High Speed Power Switching, Logic level
- Enhanced Body diode DV/DT capability
- Enhanced Avalanche Ruggedness
- 100% UIS Tested, 100% Rg Tested
- Lead Free, Halogen Free

Application

- DC/DC Converter
- Motor Drivers
- Ideal for high-frequency switching and synchronous rectification

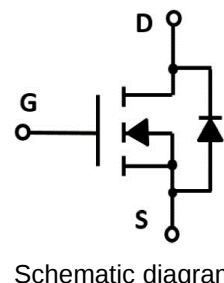


MU1A70AG: Device code
 XXXX: Code

Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
100V	8.0mΩ@10V	70A
	11.5mΩ@4.5V	



Halogen-Free

Absolute Maximum Ratings (TA=25°C unless otherwise noted)				
Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V _{DS}	Drain-Source Breakdown Voltage		100	V
V _{GS}	Gate-Source Voltage		±20	V
E _{AS}	Single pulse avalanche energy ^{Note1}		105	mJ
T _J , T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	Tc=25°C	70	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested	Tc=25°C	250	A
I _D	Continuous Drain Current	Tc=25°C	70	A
P _D	Maximum Power Dissipation	Tc=25°C	90	W
R _{θJA}	Thermal Resistance Junction-Ambient		30	°C/W

Ordering Information (Example)						
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MU1A70AG	TO-252	MU1A70AG	2,500	5,000	35,000	13"reel

Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 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	--	--	1.0	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	1.7	2.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =30A	--	8.0	10	mΩ
		V _{GS} =4.5V, I _D =20A	--	11.5	15	mΩ
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1MHz	--	1480	--	pF
C _{OSS}	Output Capacitance		--	230	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	10	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DD} =50V, I _D =20A, V _{GS} =10V	--	25.2	--	nC
Q _{gs}	Gate Source Charge		--	6	--	nC
Q _{gd}	Gate Drain Charge		--	5	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =50V, I _D =20A, V _{GS} =10V, R _G =4.5Ω	--	14	--	nS
t _r	Turn-on Rise Time		--	21	--	nS
t _{d(off)}	Turn-Off Delay Time		--	40	--	nS
t _f	Turn-Off Fall Time		--	30	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25℃, I _S =20A	--	--	1.2	V

Note :

1、EAS Test condition : V_{DD}=20V, V_{GS}=10V, L=0.3mH, R_G=25Ω, Starting T_J=25° C.

Typical Operating Characteristics

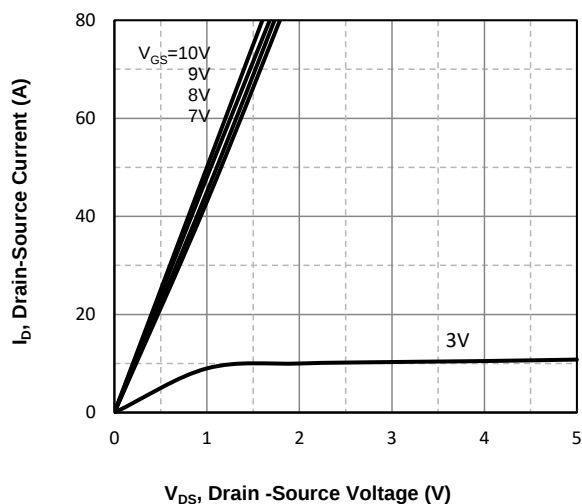


Fig1. Typical Output Characteristics

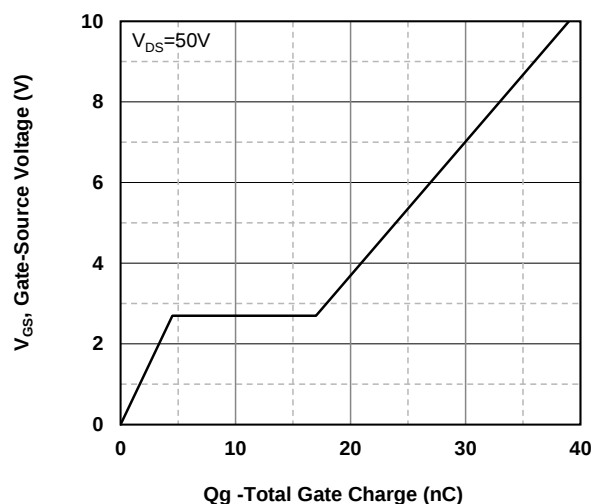


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

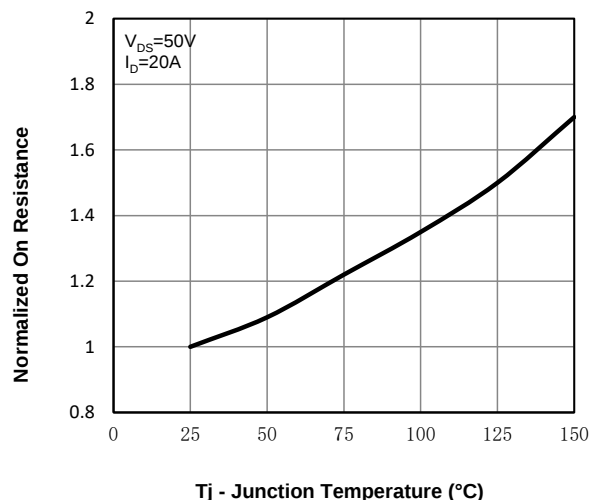


Fig3. Normalized On-Resistance Vs. Temperature

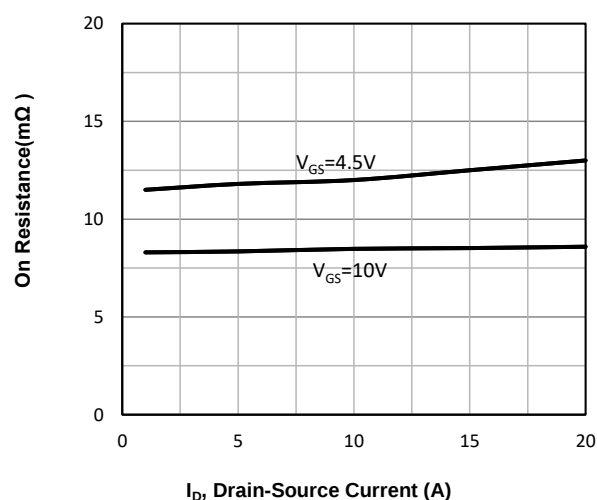


Fig4. On-Resistance Vs. Drain-Source Current

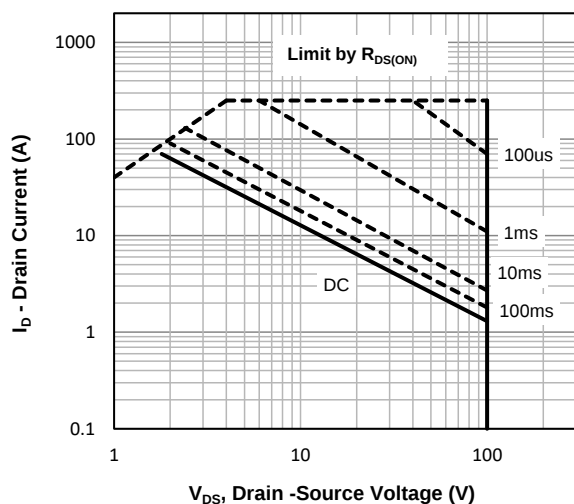


Fig5. Maximum Safe Operating Area

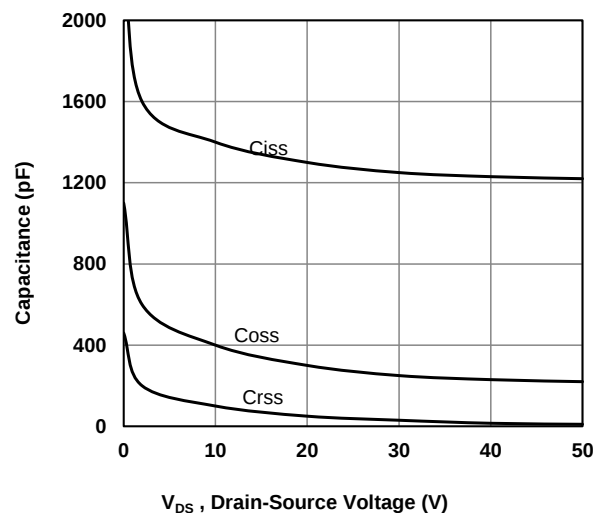
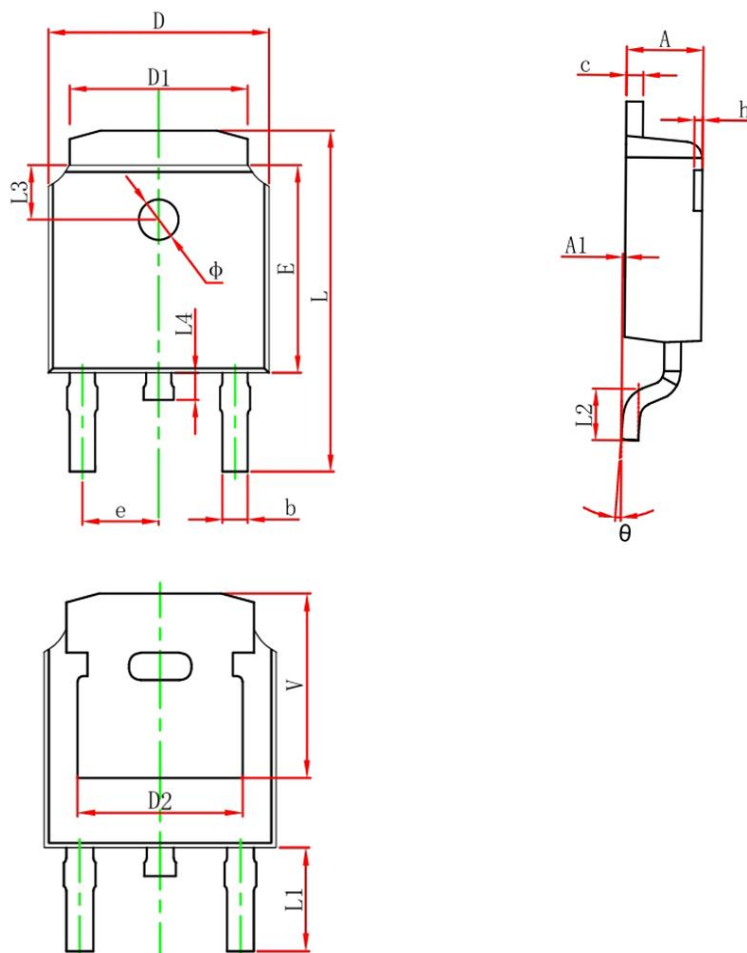


Fig6 Typical Capacitance Vs. Drain-Source Voltage

TO-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.	