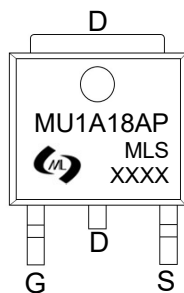


### Features

- Split gate trench MOSFET technology
- Low RDS(on) & FOM
- Extremely low switching loss
- Excellent stability and uniformity

### Application

- Power management
- Portable equipment



MU1A18AP: Device code  
XXXX:Code

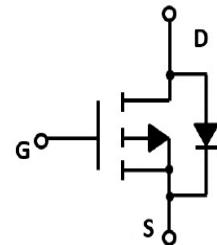
Marking and pin assignment

### Product Summary

$V_{DS}$	$R_{DS(ON)}$ MAX	$I_D$ MAX
-100V	110mΩ@-10V	-18A
	120mΩ@-4.5V	



TO-252 top view



Schematic diagram



Pb-Free



RoHS



Halogen-Free

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

Symbol	Parameter	Rating	Unit
<b>Common Ratings (TC=25°C Unless Otherwise Noted)</b>			
$V_{DS}$	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	$T_c=25^\circ\text{C}$ -18	A
<b>Mounted on Large Heat Sink</b>			
$I_{DM}$	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$ -72	A
$I_D$	Continuous Drain Current	$T_c=25^\circ\text{C}$ -18	A
$P_D$	Maximum Power Dissipation	$T_c=25^\circ\text{C}$ 72	W
$E_{AS}$	Single Pulsed Avalanche Energy <sup>Note1</sup>	10.5	mJ

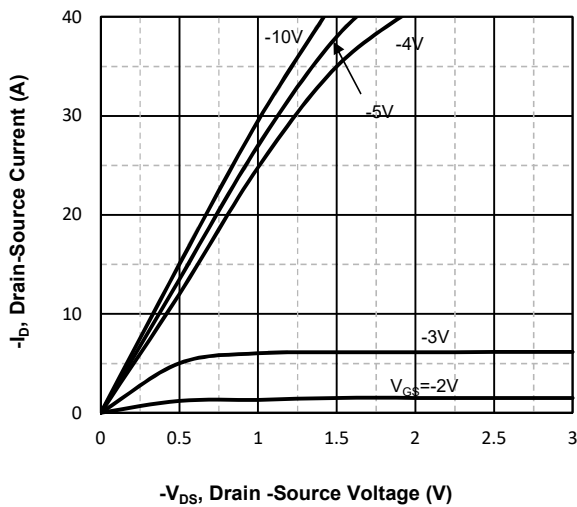
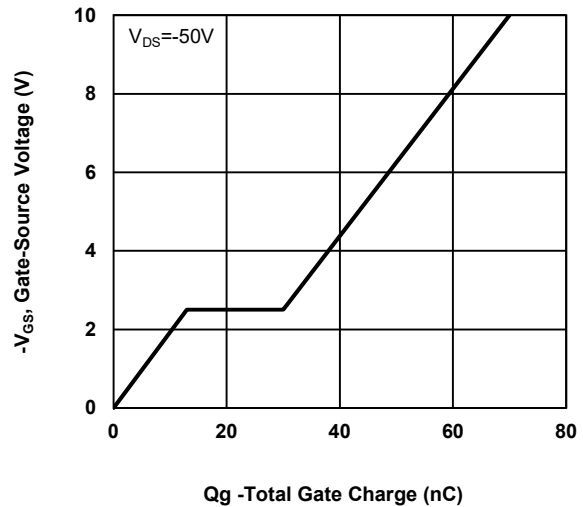
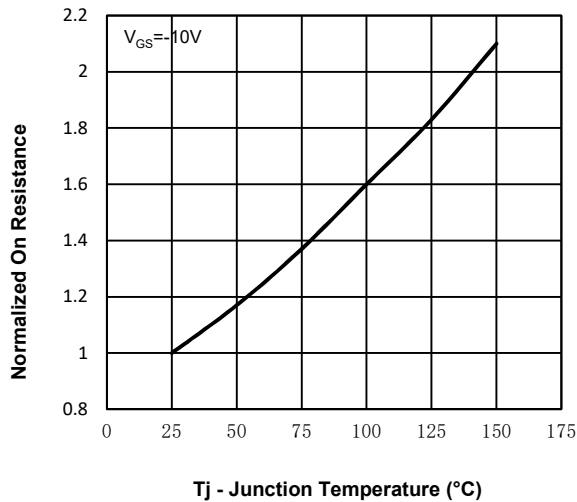
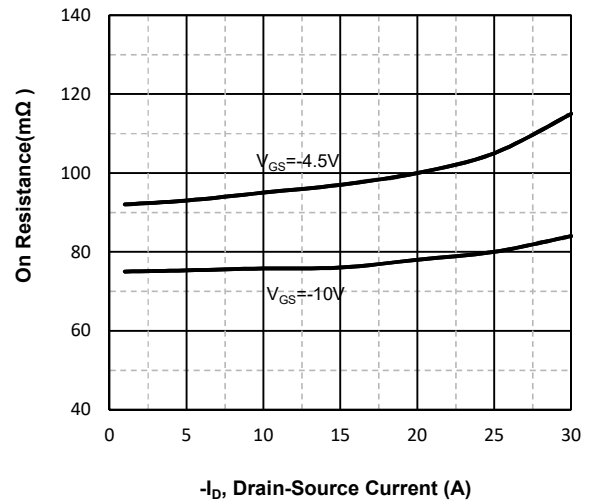
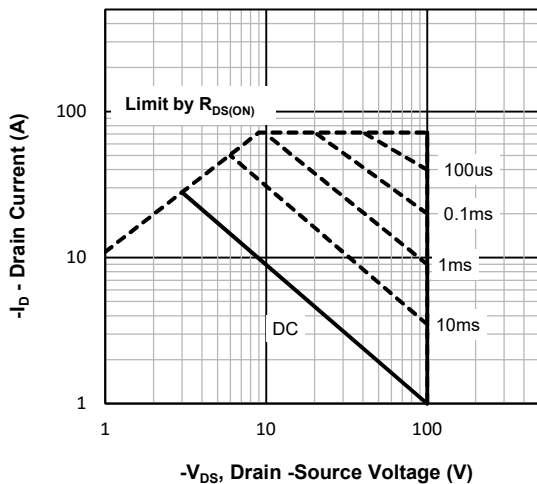
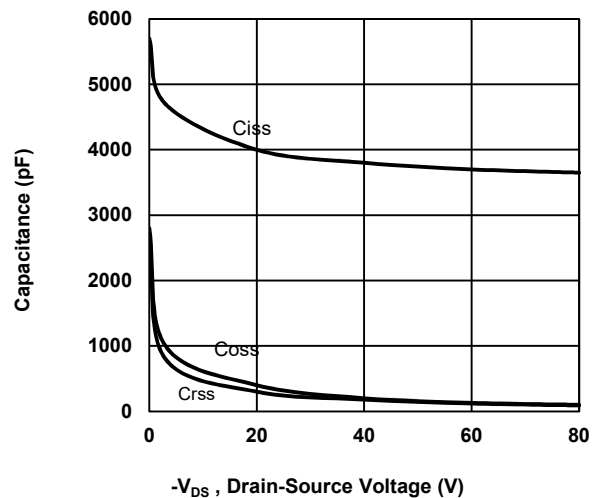
### Ordering Information (Example)

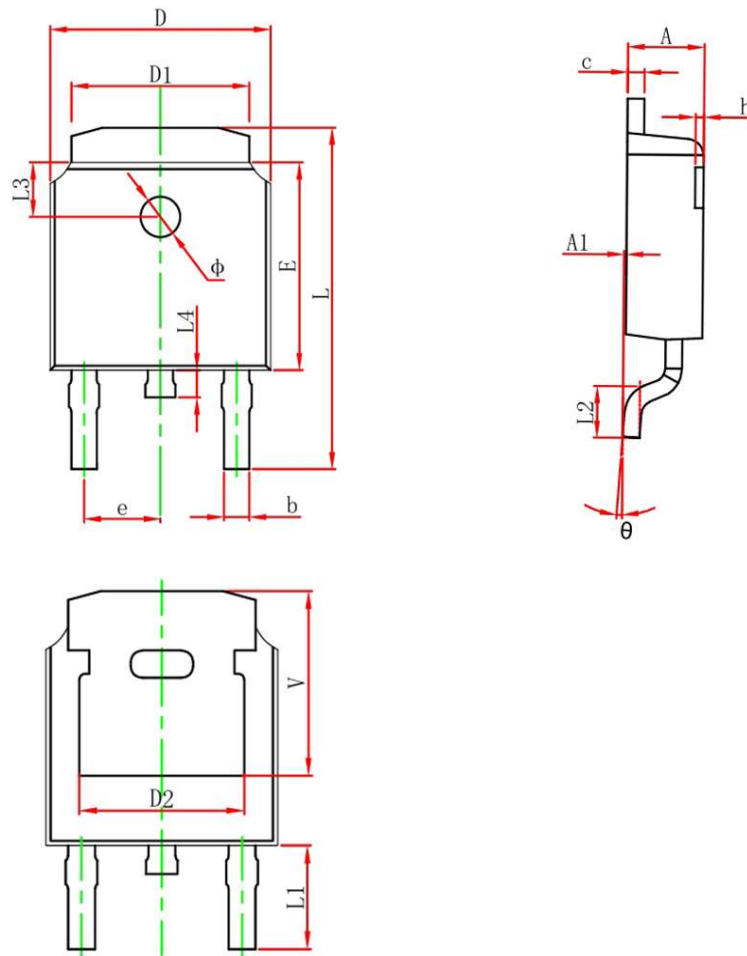
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MU1A18AP	TO-252	MU1A18AP	2,500	5,000	35,000	13"reel

Electrical Characteristics (T <sub>J</sub> =25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
<b>Static Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
BV <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	-100	--	--	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-100V, V <sub>GS</sub> =0V	--	--	-1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	--	--	±100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-1.0	-1.8	-2.5	V
R <sub>DS(on)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =-10V, I <sub>D</sub> =-10A	--	78	110	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-5A	--	95	120	mΩ
<b>Dynamic Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
C <sub>ISS</sub>	Input Capacitance	V <sub>DS</sub> =-50V, V <sub>GS</sub> =0V, f=1MHz	--	3810	--	pF
C <sub>OSS</sub>	Output Capacitance		--	100	--	pF
C <sub>RSS</sub>	Reverse Transfer Capacitance		--	95	--	pF
<b>Switching Characteristics</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-50V, I <sub>D</sub> =-18A, V <sub>GS</sub> =-10V	--	70	--	nC
Q <sub>gs</sub>	Gate Source Charge		--	12.4	--	nC
Q <sub>gd</sub>	Gate Drain Charge		--	15.5	--	nC
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DS</sub> =-50V, I <sub>D</sub> =-18A, V <sub>GS</sub> =-10V, R <sub>G</sub> =9.1Ω	--	16	--	nS
t <sub>r</sub>	Turn-on Rise Time		--	73	--	nS
t <sub>d(off)</sub>	Turn-Off Delay Time		--	35	--	nS
t <sub>f</sub>	Turn-Off Fall Time		--	57	--	nS
<b>Source- Drain Diode Characteristics</b>						
V <sub>SD</sub>	Forward on voltage	T <sub>J</sub> =25°C, I <sub>S</sub> =-18A	--	-0.8	-1.2	V

**Note:**

- 1、EAS Test condition: V<sub>DD</sub>=50V, L=0.5mH, V<sub>GS</sub>=20V, I<sub>AS</sub>=6.5A, Starting T<sub>J</sub> = 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.	