

### Features

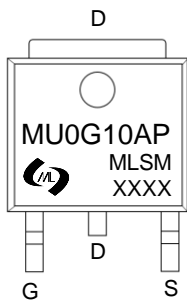
- High density cell design for ultra low R<sub>ds(on)</sub>
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation

### Product Summary

V <sub>DS</sub>	R <sub>DS(ON)</sub> TYP	I <sub>D</sub>
-60V	100mΩ@-10V	-10A
	130mΩ@-4.5V	

### Application

- PWM applications
- Power management
- Load switch

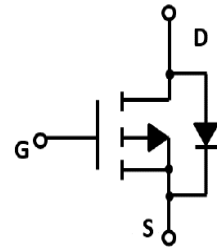


MU0G10AP: Device code  
XXXX:Code

Marking and pin assignment



TO-252 top view



Schematic diagram



Pb-Free



RoHS



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 <sub>DS</sub>	Drain-Source Breakdown Voltage	-60	V
V <sub>GS</sub>	Gate-Source Voltage	±20	V
T <sub>J</sub>	Maximum Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C
I <sub>S</sub>	Diode Continuous Forward Current	Tc=25°C -10	A

### Mounted on Large Heat Sink

I <sub>DM</sub>	Pulse Drain Current Tested	Tc=25°C -36	A
I <sub>D</sub>	Continuous Drain Current	Tc=25°C -10	A
P <sub>D</sub>	Maximum Power Dissipation	Tc=25°C 50	W
R <sub>θJA</sub>	Thermal Resistance Junction-to-Ambient	75	°C/W

### Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MU0G10AP	TO-252	MU0G10AP	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	-60	--	--	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-60V, V <sub>GS</sub> =0V	--	--	-1.0	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> =-12A	--	100	140	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-8A	--	130	200	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> =-15V, V <sub>GS</sub> =0V, f=1MHz	--	715	--	pF
C <sub>OSS</sub>	Output Capacitance		--	51	--	pF
C <sub>RSS</sub>	Reverse Transfer Capacitance		--	34	--	pF
<b>Switching Characteristics</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-20V, I <sub>D</sub> =-10A, V <sub>GS</sub> =-4.5V	--	6	--	nC
Q <sub>gs</sub>	Gate Source Charge		--	3	--	nC
Q <sub>gd</sub>	Gate Drain Charge		--	2	--	nC
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> =-12V, I <sub>D</sub> =-10A, V <sub>GS</sub> =-10V, R <sub>G</sub> =3.3Ω	--	10	--	nS
t <sub>r</sub>	Turn-on Rise Time		--	17	--	nS
t <sub>d(off)</sub>	Turn-Off Delay Time		--	22	--	nS
t <sub>f</sub>	Turn-Off Fall Time		--	21	--	nS
<b>Source- Drain Diode Characteristics</b>						
V <sub>SD</sub>	Forward on voltage	T <sub>J</sub> =25°C, I <sub>S</sub> =-10A	--	--	-1.2	V

Typical Operating Characteristics

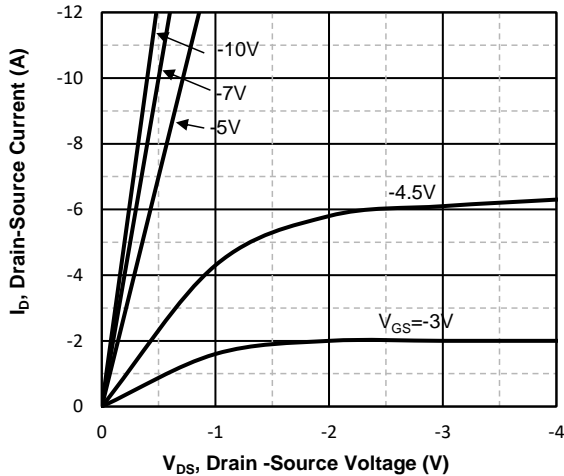


Fig1. Typical Output Characteristics

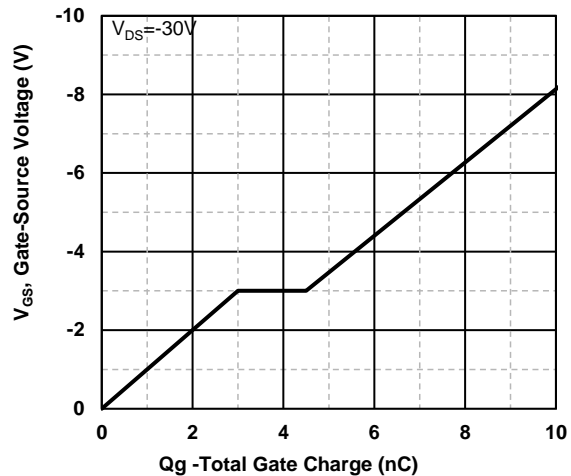


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

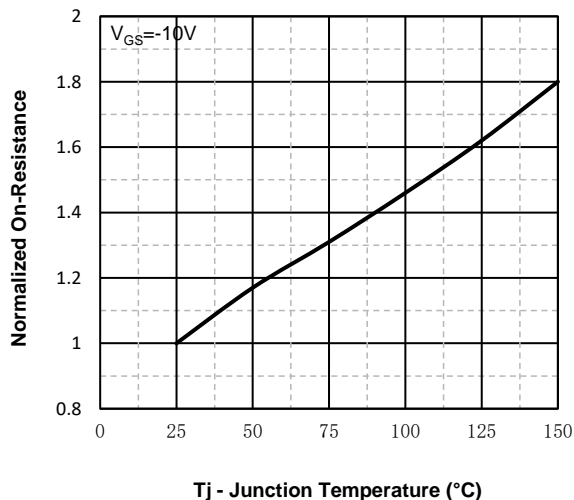


Fig3. Normalized On-Resistance Vs. Temperature

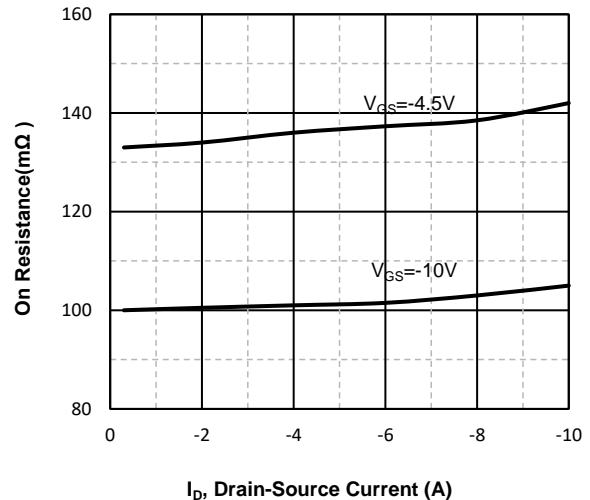


Fig4. Drain-Source on Resistance Vs. Drain-Source Current

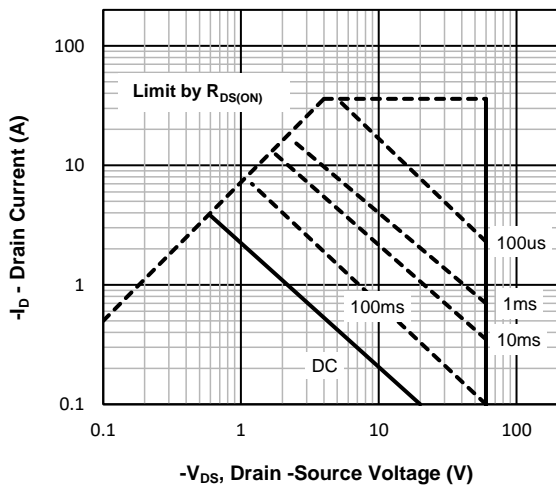


Fig5. Maximum Safe Operating Area

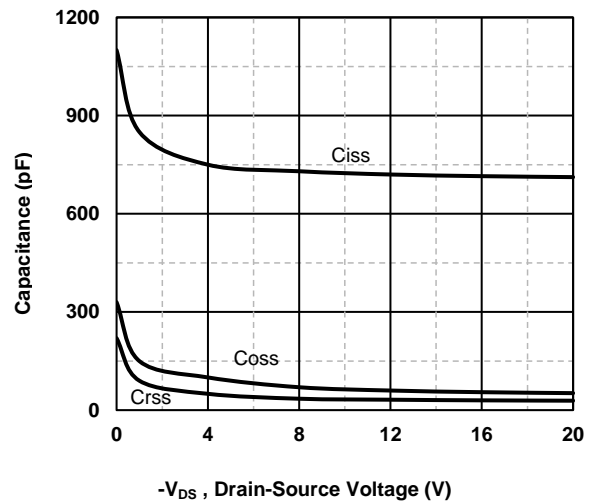
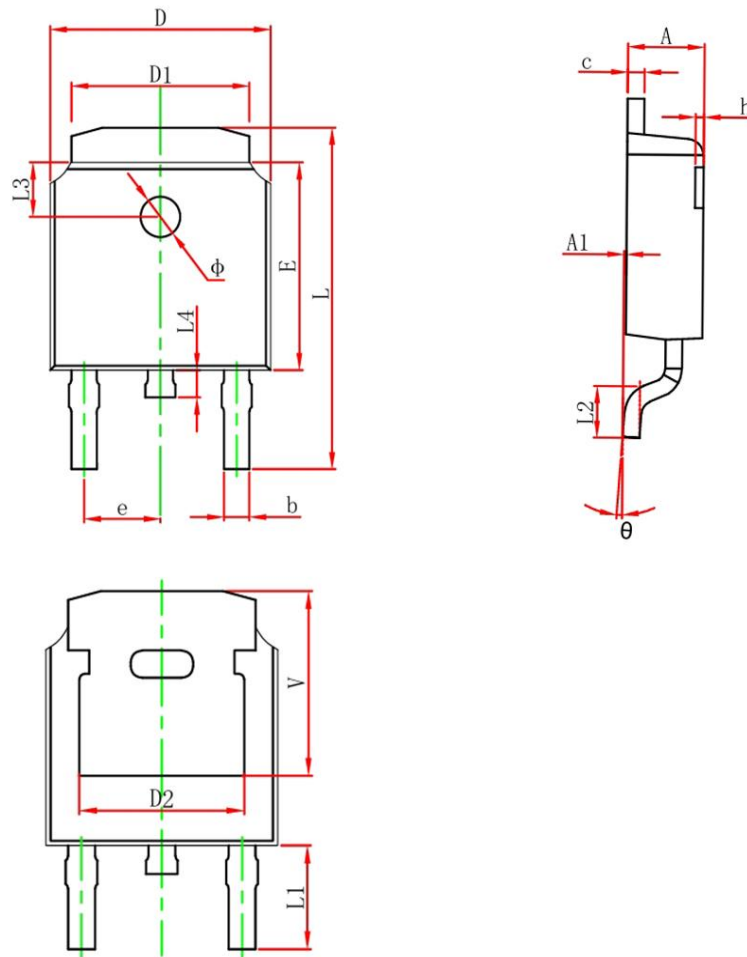


Fig6 Typical Capacitance Vs. Drain-Source Voltage

**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
$\Phi$	1.100	1.300	0.043	0.051
$\theta$	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250 REF.		0.207 REF.	