

Features

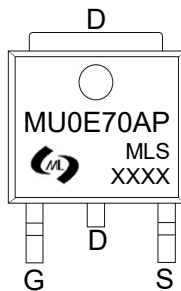
- High density cell design for ultra low $R_{DS(on)}$
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-40V	10mΩ@-10V	-70A
	15mΩ@-4.5V	

Application

- PWM applications
- Power management
- Load switch

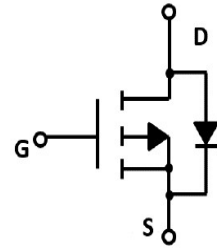


MU0E70AP: Device code
XXXX: Code

Marking and pin assignment



TO-252 top view



Schematic diagram



Pb-Free



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	-40	V
V_{GS}	Gate-Source Voltage	±20	V
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-55 to 150	°C
I_S	Diode Continuous Forward Current	$T_C=25^{\circ}C$ -70	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}C$ -280	A
I_D	Continuous Drain Current	$T_C=25^{\circ}C$ -70	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}C$ 78	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient	50	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MU0E70AP	TO-252	MU0E70AP	2,500	5,000	350,000	13"reel

Electrical Characteristics (TJ=25°C unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
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Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)

$BV_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-40	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-40V, V_{GS}=0V$	--	--	-1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	--	--	± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	-1.8	-2.5	V
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS}=-10V, I_D=-20A$	--	7.5	10	m Ω
		$V_{GS}=-4.5V, I_D=-15A$	--	10.5	15	m Ω

Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)

C_{ISS}	Input Capacitance	$V_{DS}=-20V, V_{GS}=0V, f=1MHz$	--	4600	--	pF
C_{OSS}	Output Capacitance		--	490	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	470	--	pF

Switching Characteristics

Q_g	Total Gate Charge	$V_{DS}=-20V, I_D=-20A, V_{GS}=-10V$	--	99	--	nC
Q_{gs}	Gate Source Charge		--	14	--	nC
Q_{gd}	Gate Drain Charge		--	22	--	nC
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=-20V, I_D=-20A, V_{GS}=-10V, R_G=3\Omega$	--	11	--	nS
t_r	Turn-on Rise Time		--	52	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	331	--	nS
t_f	Turn-Off Fall Time		--	185	--	nS

Source- Drain Diode Characteristics

V_{SD}	Forward on voltage	$T_J=25^\circ C, I_S=-10A$	--	--	-1.2	V
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Typical Operating Characteristics

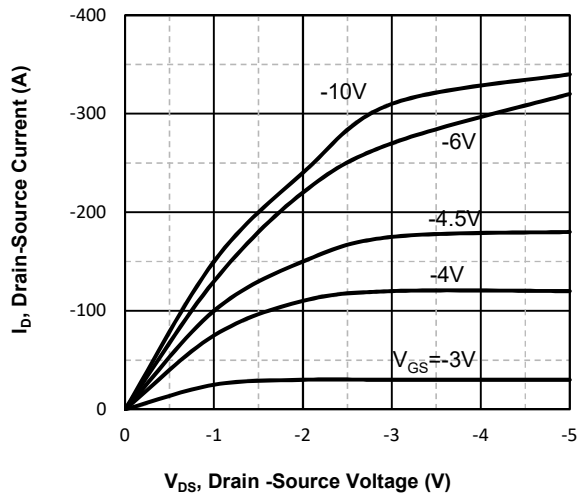


Fig1. Typical Output Characteristics

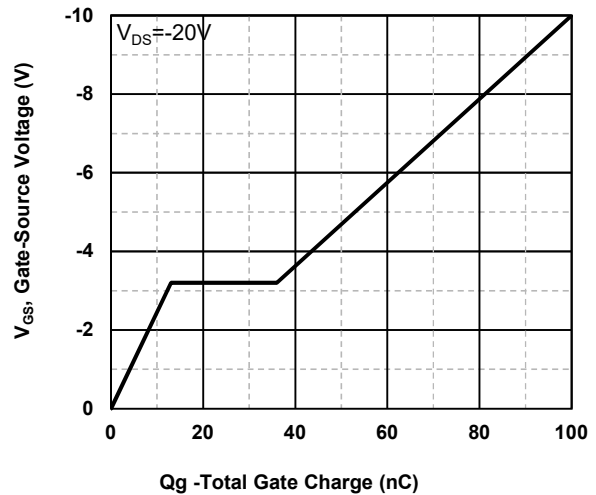


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

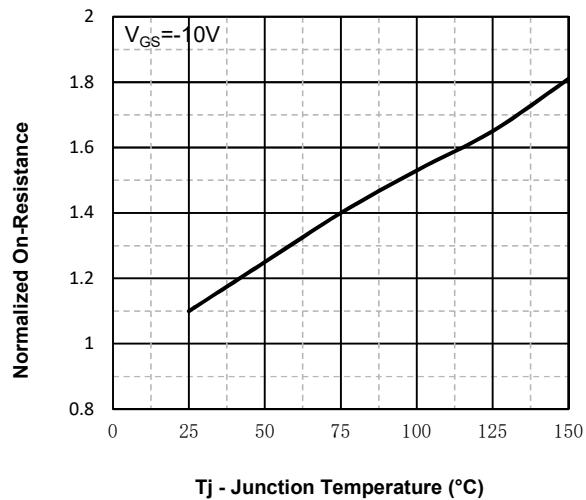


Fig3. Normalized On-Resistance Vs. Temperature

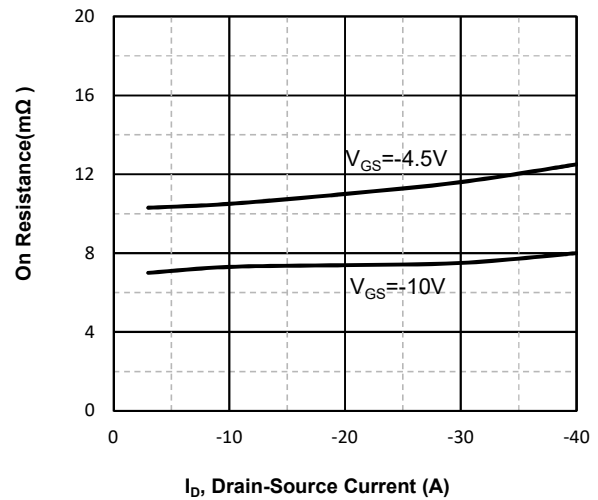


Fig4. On Resistance Vs. Drain-Source Current

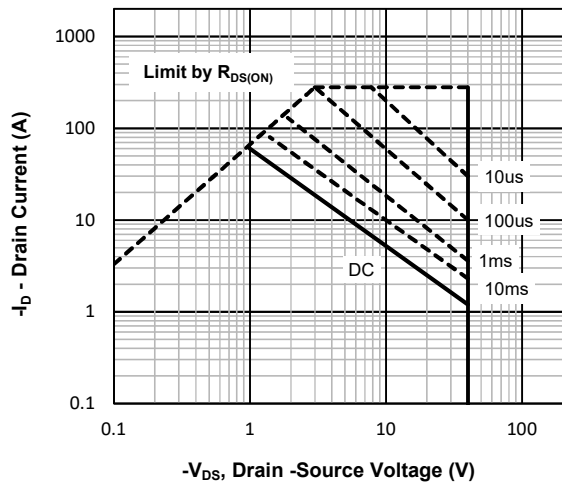


Fig5. Maximum Safe Operating Area

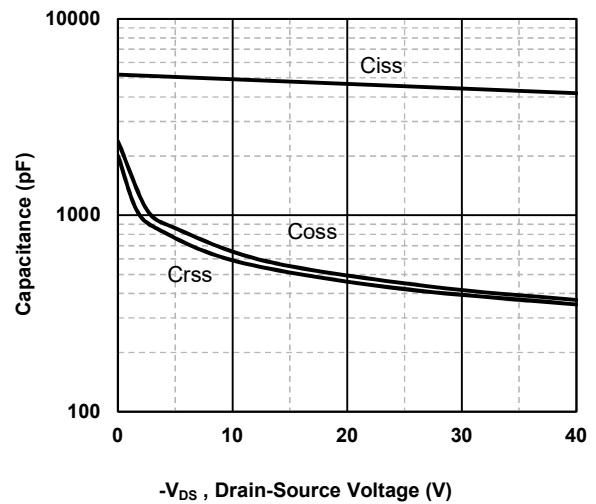
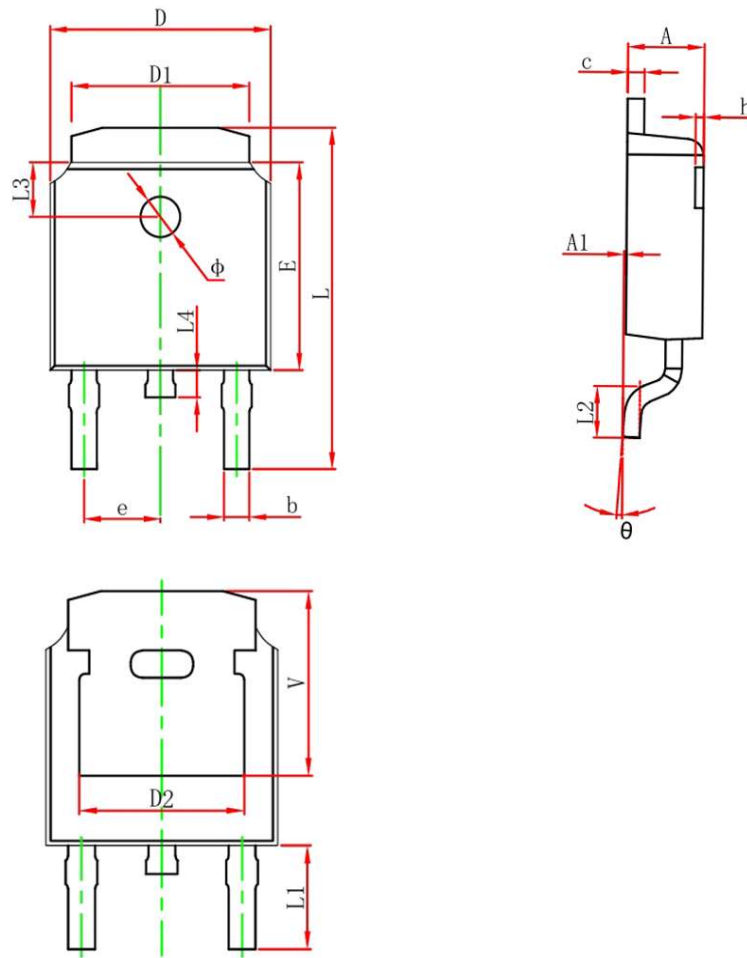


Fig6 Typical Capacitance Vs. Drain-Source Voltage

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.	