

Features

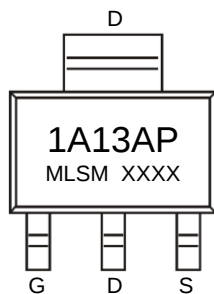
- Low RDS(on) & FOM
- Extremely low switching loss
- Excellent stability and uniformity

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
-100V	105mΩ@-10V	-13A
	120mΩ@-4.5V	

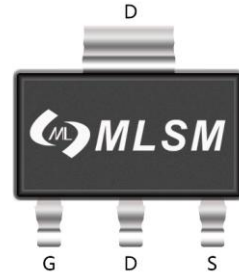
Application

- Power management
- Portable equipment

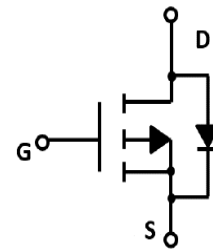


1A13AP: Device code
XXXX: Code

Marking and pin assignment



SOT-223 top view



Schematic diagram



Pb-Free



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
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-50 to 155	°C
I_S	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ -13	A

Mounted on Large Heat Sink

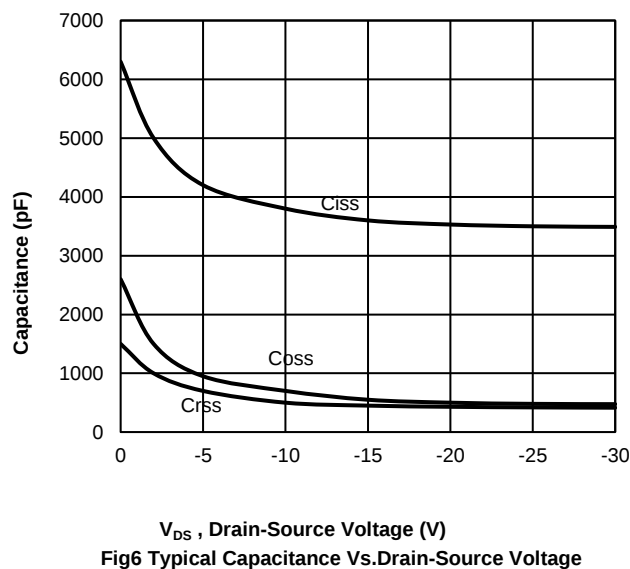
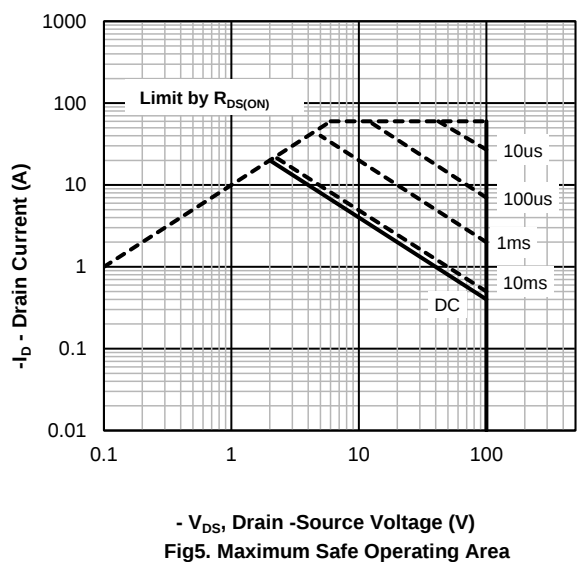
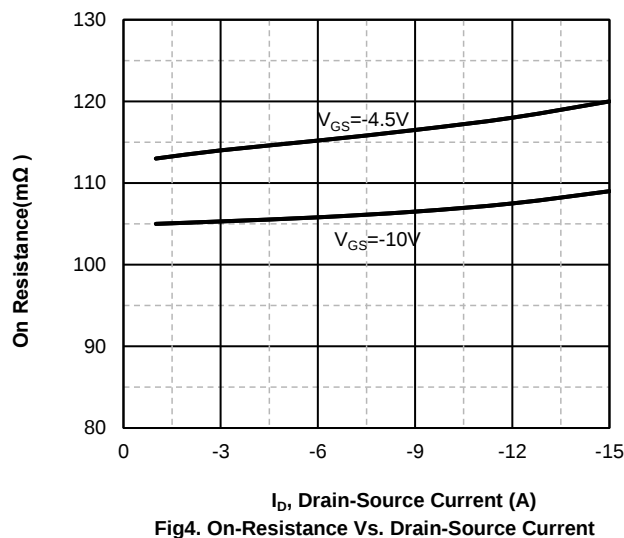
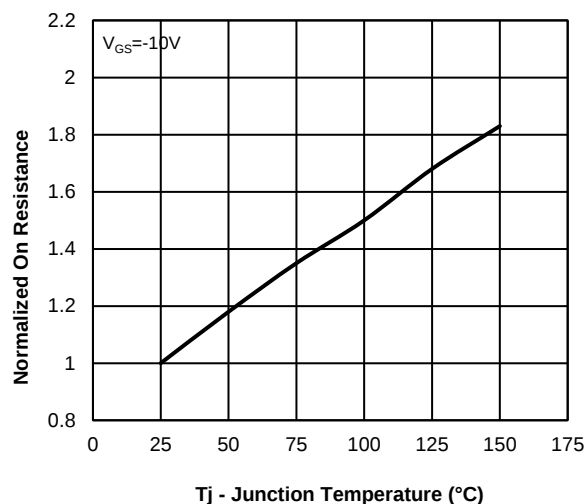
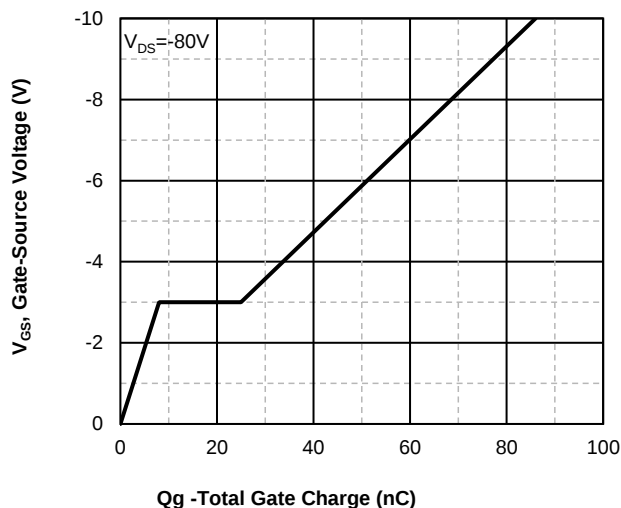
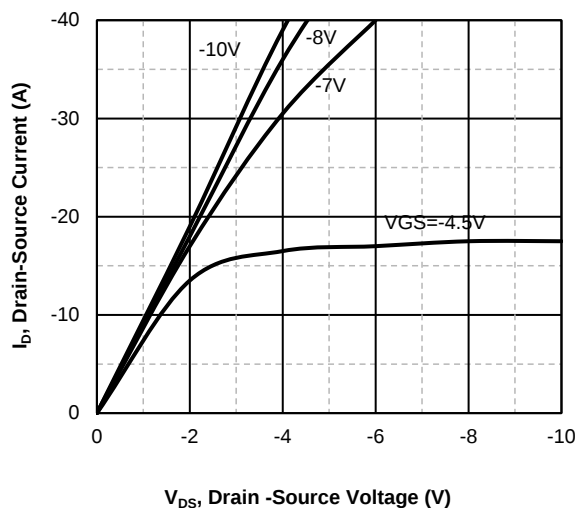
I_{DM}	Pulse Drain Current Tested	$T_C=25^\circ\text{C}$ -60	A
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$ -13	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 1.5	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	104	°C/W

Ordering Information (Example)

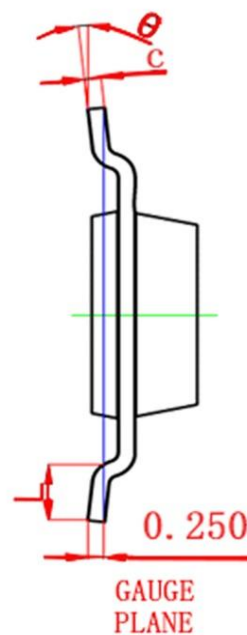
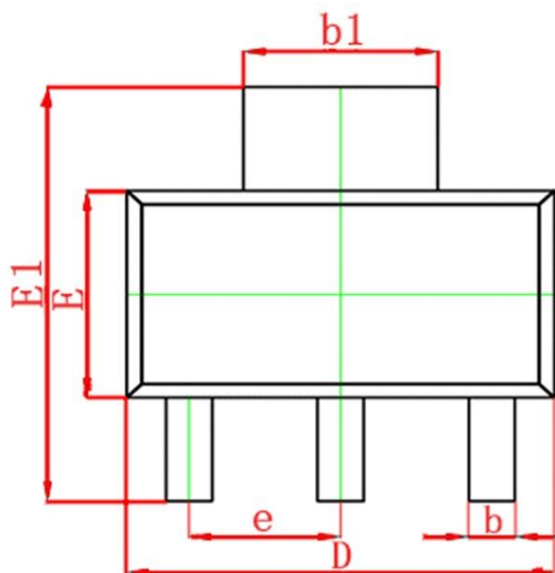
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MT1A13AP	SOT-223	1A13AP	2,500	5,000	35,000	13"reel

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	uA
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	-1.8	-3.0	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-10A	--	105	170	mΩ
		V _{GS} =-4.5V, I _D =-5A	--	120	210	mΩ
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-25V, V _{GS} =0V, f=1MHz	--	3500	--	pF
C _{OSS}	Output Capacitance		--	480	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	340	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =-80V, I _D =-10A, V _{GS} =-10V	--	85	--	nC
Q _{gs}	Gate Source Charge		--	7	--	nC
Q _{gd}	Gate Drain Charge		--	18	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =-25V, I _D =-10A, V _{GS} =-10V, R _G =3Ω	--	13	--	nS
t _r	Turn-on Rise Time		--	20	--	nS
t _{d(off)}	Turn-Off Delay Time		--	22	--	nS
t _f	Turn-Off Fall Time		--	11	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25℃, I _S =-10A	--	-0.8	-1.2	V

Typical Operating Characteristics



SOT-223 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	--	1.800	--	0.071
A1	0.020	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.840	0.026	0.033
b1	2.900	3.100	0.114	0.122
c	0.230	0.350	0.009	0.014
D	6.300	6.700	0.248	0.264
E	3.300	3.700	0.130	0.146
E1	6.700	7.300	0.264	0.287
e	2.300(BSC)		0.091(BSC)	
L	0.750	--	0.030	--
θ	0°	10°	0°	10°