

Features

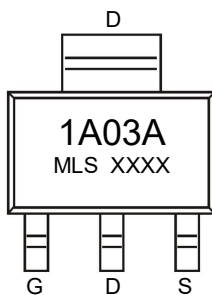
- Trench Power MV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
100V	280mΩ@10V	3A
	350mΩ@4.5V	

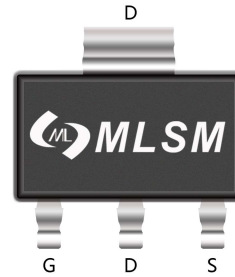
Application

- DC-DC Converters
- Power management functions

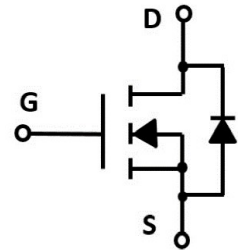


1A03A: Device code
 XXXX: Code

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
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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	Tc=25°C	3	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}C$	9	A
I_D	Continuous Drain Current	$T_C=25^{\circ}C$	3	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}C$	1.3	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		96	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MT1A03A	SOT-223	1A03A	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	VGS=0V, ID=250μA	100	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=100V, VGS=0V	--	--	1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	1.0	1.8	2.5	V
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=3A	--	195	280	mΩ
		VGS=4.5V, ID=2A	--	230	350	mΩ
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
CISS	Input Capacitance	VDS=10V, VGS=0V, f=1MHz	--	387	--	pF
COSS	Output Capacitance		--	30	--	pF
CRSS	Reverse Transfer Capacitance		--	28	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDS=50V, ID=2A, VGS=10V	--	9.5	--	nC
Qgs	Gate Source Charge		--	1.8	--	nC
Qgd	Gate Drain Charge		--	2	--	nC
t d(on)	Turn-on Delay Time	VDS=50V, ID=1.3A, VGS=10V, RG=1Ω	--	4	--	nS
t r	Turn-on Rise Time		--	17.5	--	nS
t d(off)	Turn-Off Delay Time		--	13	--	nS
t f	Turn-Off Fall Time		--	28	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	TJ=25℃, IS=3A	--	--	1.2	V

Typical Operating Characteristics

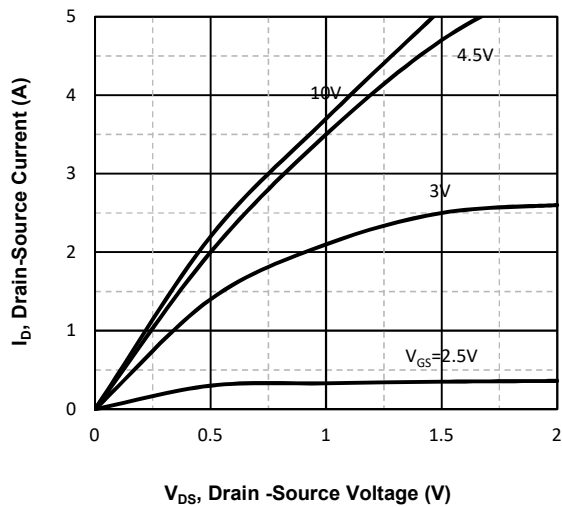


Fig1. Typical Output Characteristics

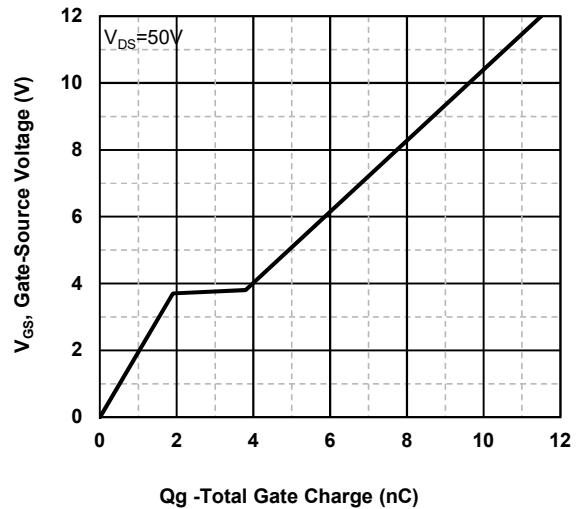


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

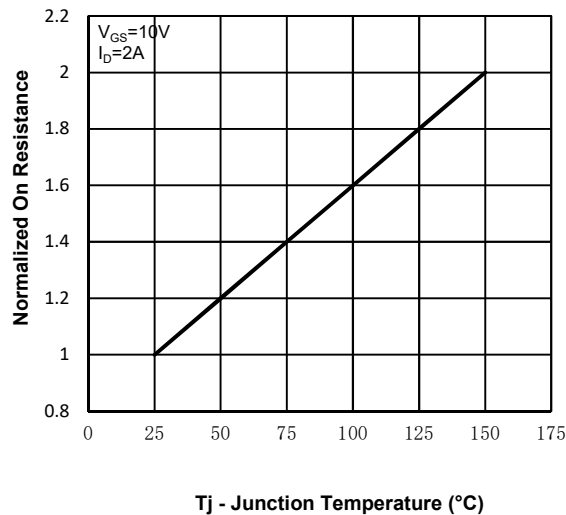


Fig3. Normalized On-Resistance Vs. Temperature

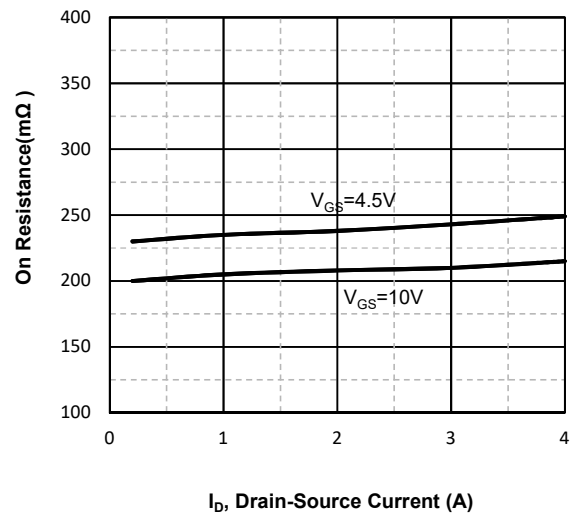


Fig4. On-Resistance Vs. Drain-Source Current

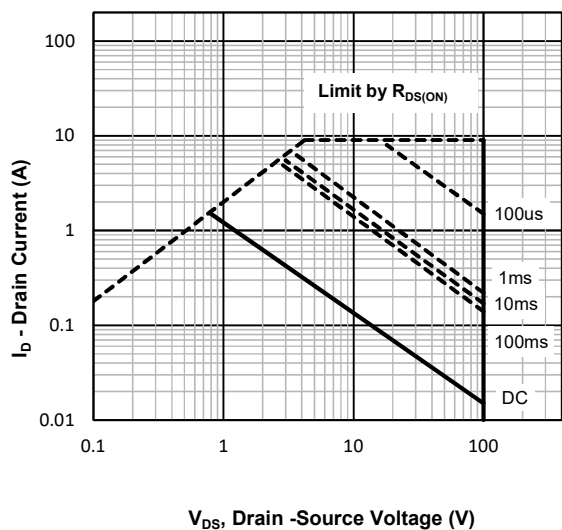


Fig5. Maximum Safe Operating Area

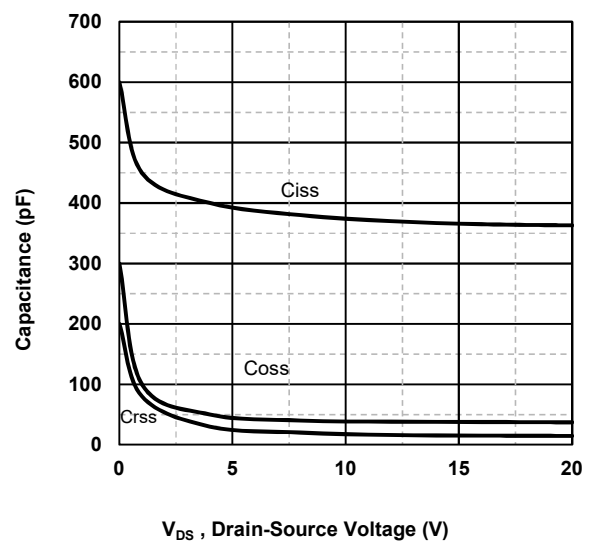
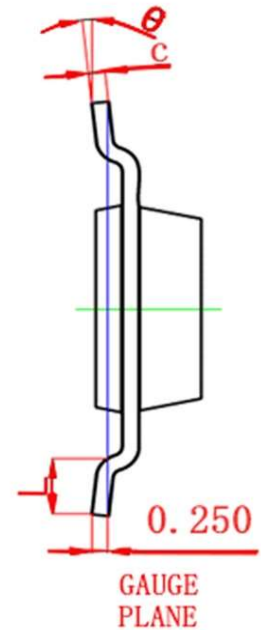
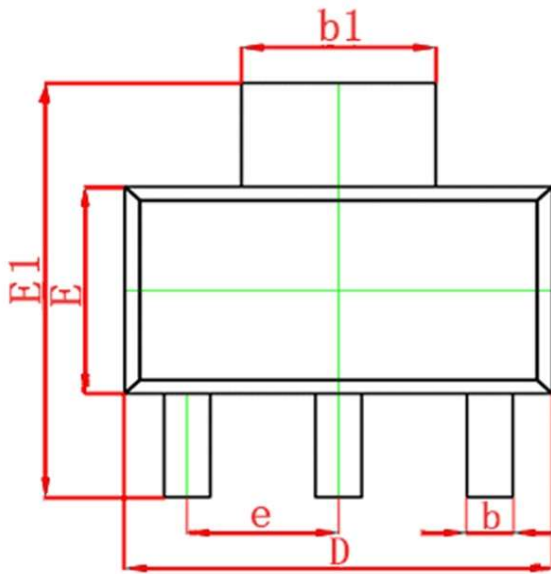


Fig6 Typical Capacitance Vs. Drain-Source Voltage

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°