

Features

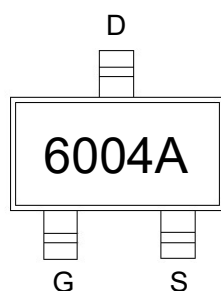
- Excellent package for good heat dissipation
- Ultra low gate charge
- Low reverse transfer capacitance
- Fast switching capability
- Avalanche energy specified

Application

- Power switching application

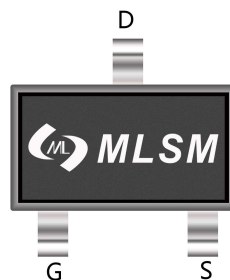
Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
60V	50mΩ@10V	4A
	65mΩ@4.5V	

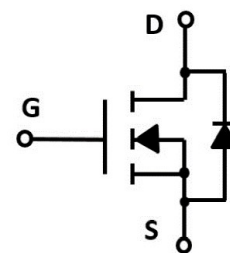


6004A: Device code

Marking and pin assignment



SOT-23-3L 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		60	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	$T_c=25^\circ\text{C}$	4	A

Mounted on Large Heat Sink

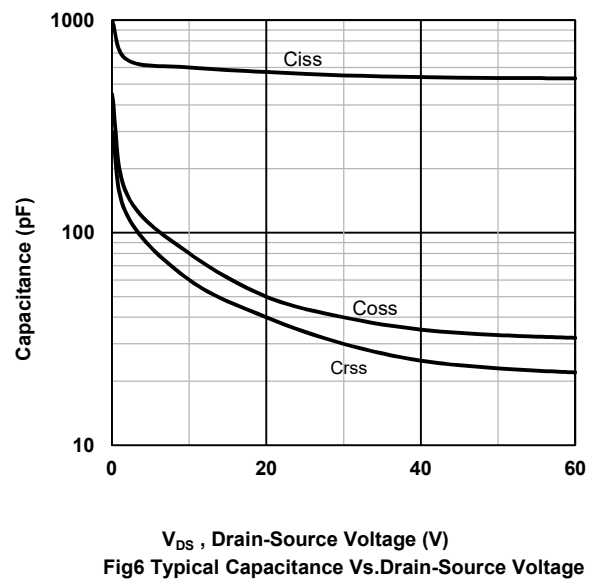
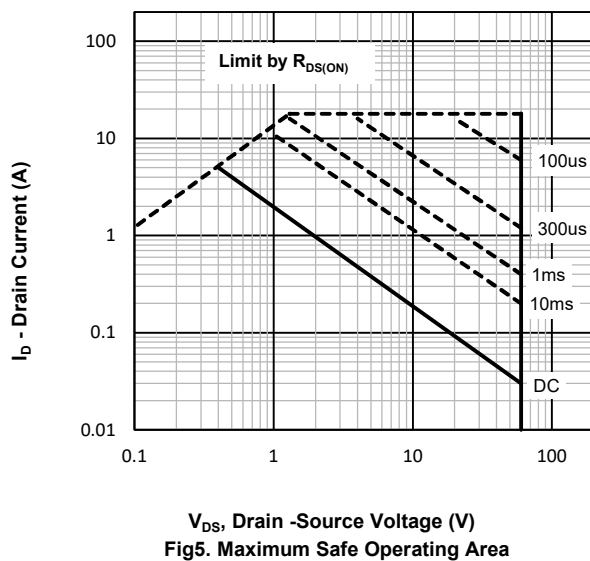
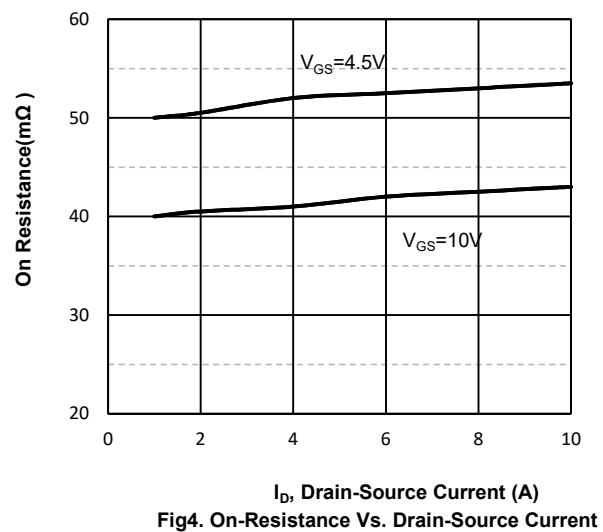
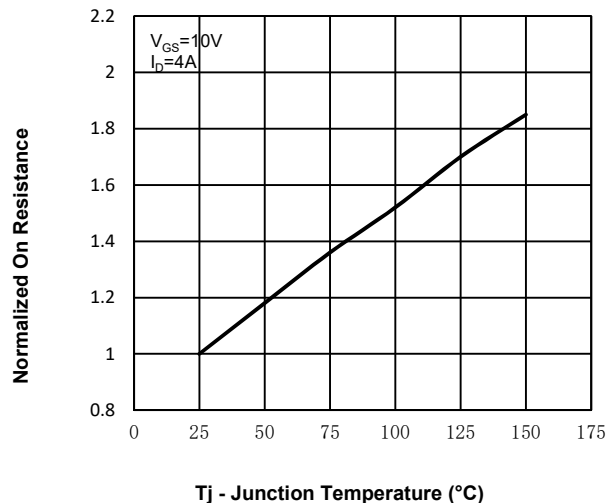
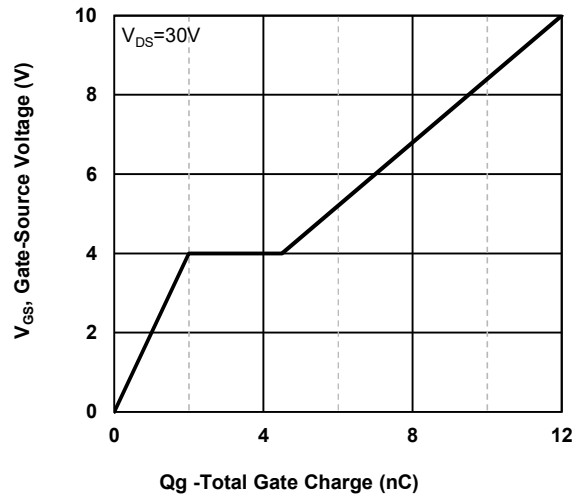
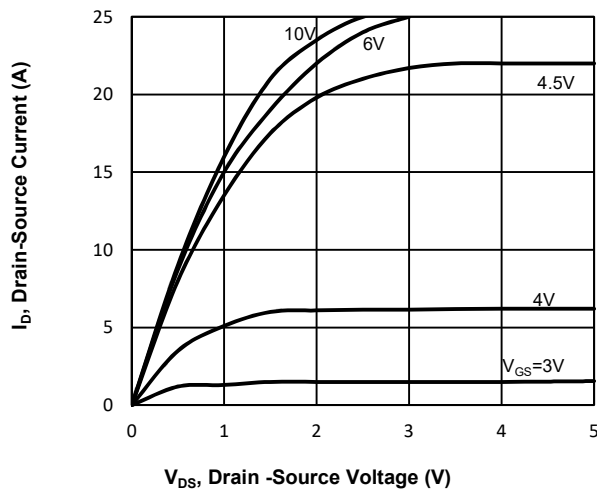
I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$	18	A
I_D	Continuous Drain Current	$T_c=25^\circ\text{C}$	4	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$	0.5	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		200	°C/W

Ordering Information (Example)

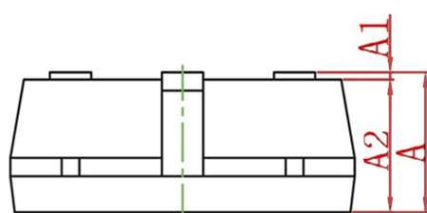
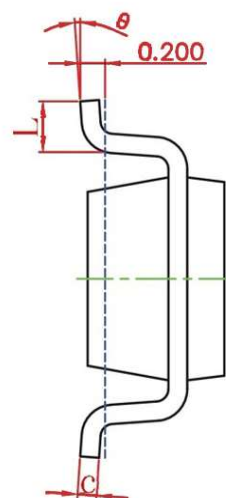
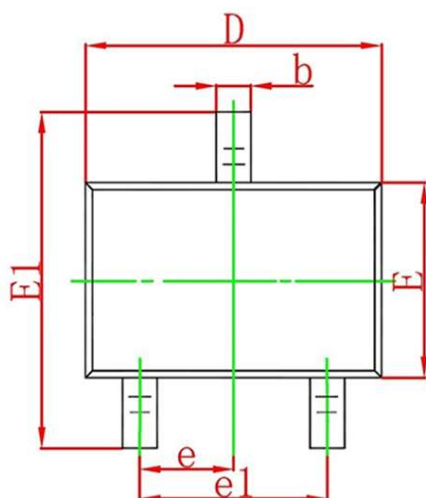
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MLSK6004A	SOT-23-3L	6004A	3,000	45,000	180,000	7"reel

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	60	–	–	V
IDSS	Zero Gate Voltage Drain Current	VDS=60V, 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	1.5	2.5	V
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=4A	–	40	50	mΩ
		VGS=4.5V, ID=2A	–	50	65	mΩ
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
CISS	Input Capacitance	VDS=30V, VGS=0V, f=1MHz	–	550	–	pF
COSS	Output Capacitance		–	43	–	pF
CRSS	Reverse Transfer Capacitance		–	35	–	pF
Switching Characteristics						
Qg	Total Gate Charge	VDS=30V, ID=4A, VGS=10V	–	11.5	–	nC
Qgs	Gate Source Charge		–	1.7	–	nC
Qgd	Gate Drain Charge		–	2.5	–	nC
td(on)	Turn-on Delay Time	VDD=30V, ID=3A, VGS=10V, RG=2.3Ω	–	6	–	nS
tr	Turn-on Rise Time		–	11	–	nS
td(off)	Turn-Off Delay Time		–	18	–	nS
tf	Turn-Off Fall Time		–	10	–	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	TJ=25℃, IS=4A	–	–	1.2	V

Typical Operating Characteristics



SOT-23-3L Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.042	0.050
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.042	0.046
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.112	0.120
E	1.500	1.700	0.060	0.068
E1	2.650	2.950	0.106	0.118
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°