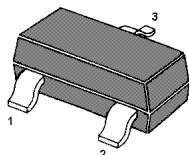
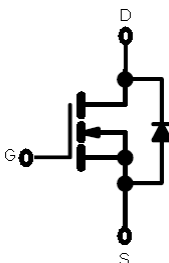


N-Channel MOSFET

SOT-23

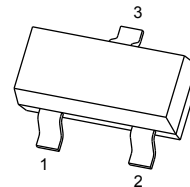


MARKING : 2394



SOT-23

1. GATE
2. SOURCE
3. DRAIN


Features

- Low $R_{DS(on)}$ @ $V_{GS}=10V$
- 5V Logic Level Control
- N Channel SOT23 Package
- Pb-Free, RoHS Compliant

Applications

- LED backlighting
- Industrial power supplies
- Load Switch
- Hand-Held Instruments
- DC/DC Converters

$V_{(BR)DSS}$	$R_{DS(on)}$ Typ	I_D Max
100V	310mΩ @ 10V	2A
	330mΩ @ 4.5V	

Maximum ratings ($T_a=25^{\circ}C$ unless otherwise noted)

Symbol	Parameter	Rating	Unit	
Common Ratings (TA=25°C Unless Otherwise Noted)				
V _{GS}	Gate-Source Voltage	±20	V	
V _{(BR)DSS}	Drain-Source Breakdown Voltage	100	V	
T _J	Maximum Junction Temperature	150	°C	
T _{STG}	Storage Temperature Range	-50 to 150	°C	
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested①	T _A =25°C	7.2	A
I _D	Continuous Drain Current	T _A =25°C	2	A
		T _A =70°C	1.6	
P _D	Maximum Power Dissipation	T _A =25°C	1.56	W
		T _A =70°C	1.2	
R _{θJA}	Thermal Resistance Junction-Ambient	80	°C/W	

$T_a=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =250μA	100	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current(T _A =25°C)	V _{DS} =100V, V _{GS} =0V	--	--	1	μA
	Zero Gate Voltage Drain Current(T _A =125°C)	V _{DS} =80V, V _{GS} =0V	--	--	100	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	2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =10V, I _D =2A	--	310	380	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =4.5V, I _D =1.5A	--	330	420	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1MHz	--	362	--	pF
C _{oss}	Output Capacitance		--	10.5	--	pF
C _{rss}	Reverse Transfer Capacitance		--	6.8	--	pF
Q _g	Total Gate Charge	V _{DS} =50V I _D =1A, V _{GS} =10V	--	3.5	--	nC
Q _{gs}	Gate Source Charge		--	0.5	--	nC
Q _{gd}	Gate Drain Charge		--	0.7	--	nC
Switching Characteristics @ T _J = 25°C (unless otherwise stated)						
t _{d(on)}	Turn on Delay Time	V _{DD} =50V, I _D =1A, R _G =3.3Ω, V _{GS} =10V	--	4.5	--	ns
t _r	Turn on Rise Time		--	3.4	--	ns
t _{d(off)}	Turn Off Delay Time		-	16	--	ns
t _f	Turn Off Fall Time		--	3	--	ns
Source Drain Diode Characteristics @ T _J = 25°C (unless otherwise stated)						
I _{SD}	Source drain current(Body Diode)	T _A =25°C	--	--	1.2	A
V _{SD}	Forward on voltage②	T _J =25°C, I _{SD} =1A, V _{GS} =0V	--	0.8	1.2	V

Typical Characteristics

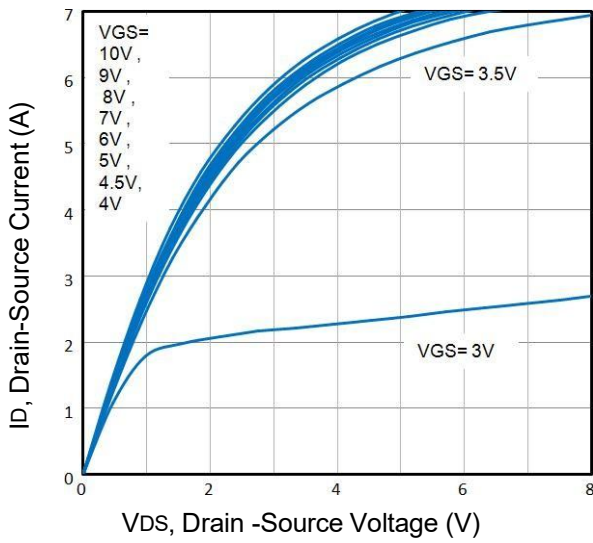


Fig1. Typical Output Characteristics

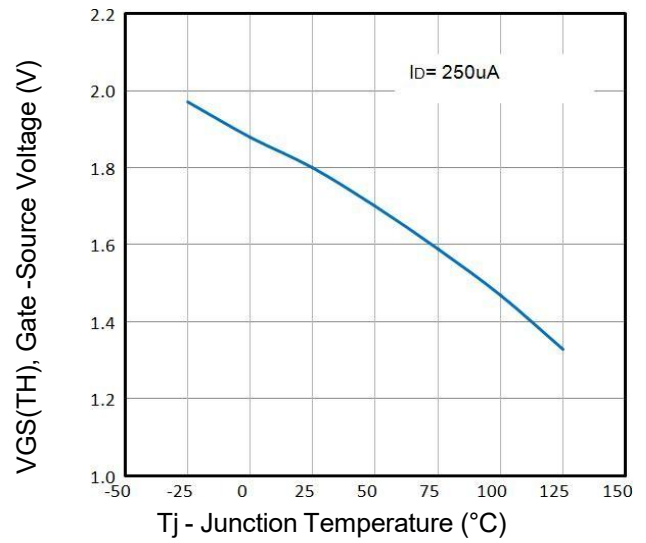


Fig2. VGS(TH) Voltage Vs. Temperature

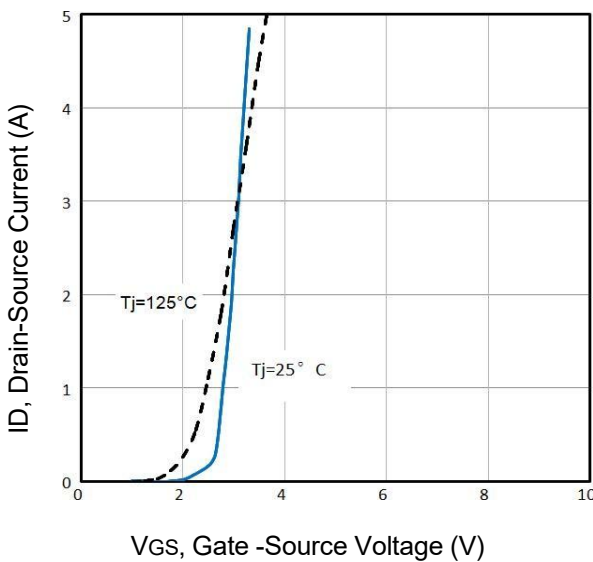


Fig3. Typical Transfer Characteristics

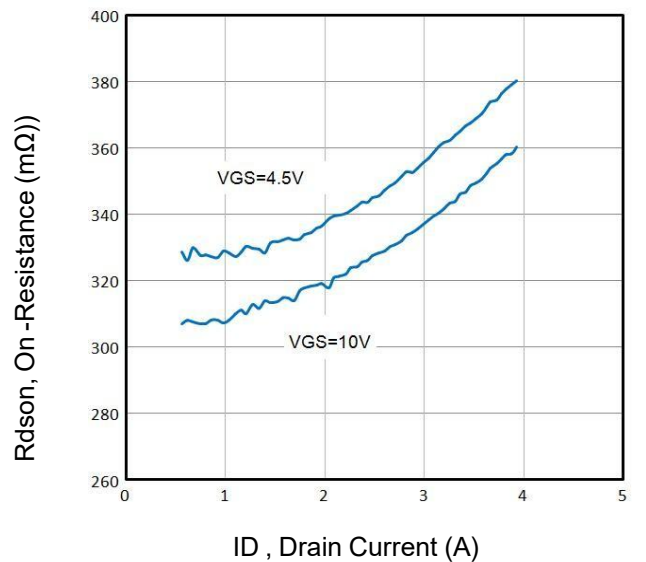


Fig4. On-Resistance vs. Drain Current and Gate

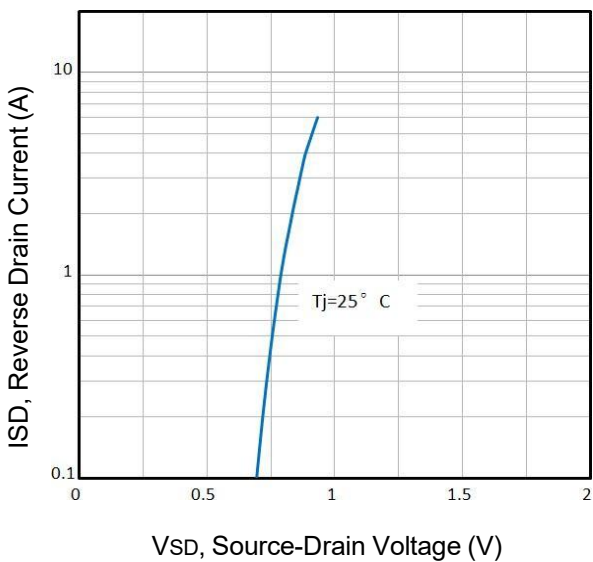


Fig5. Typical Source-Drain Diode Forward Voltage

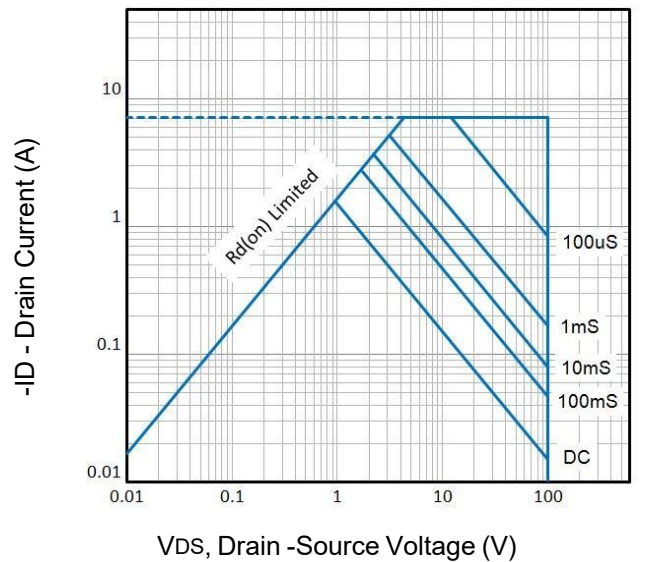


Fig6. Maximum Safe Operating Area

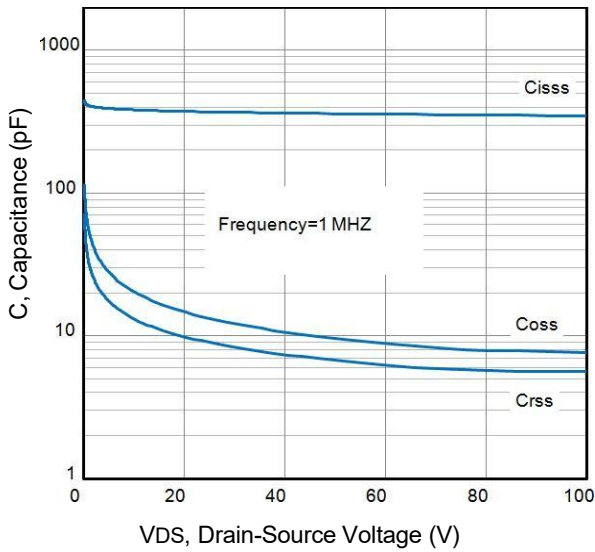


Fig7. Typical Capacitance Vs. Drain-Source Voltage

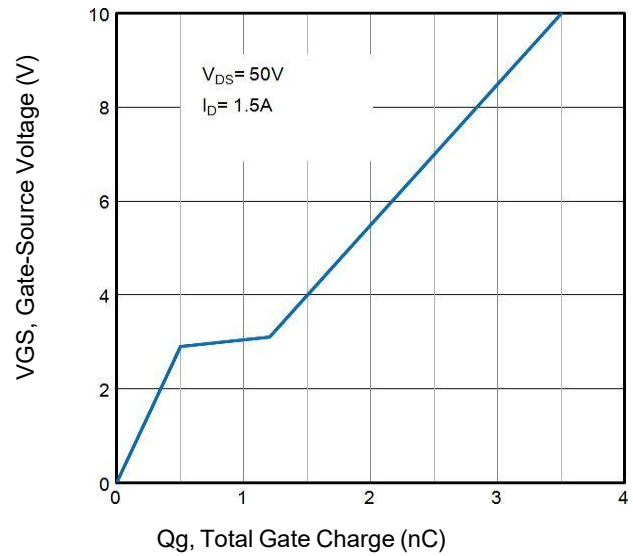


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

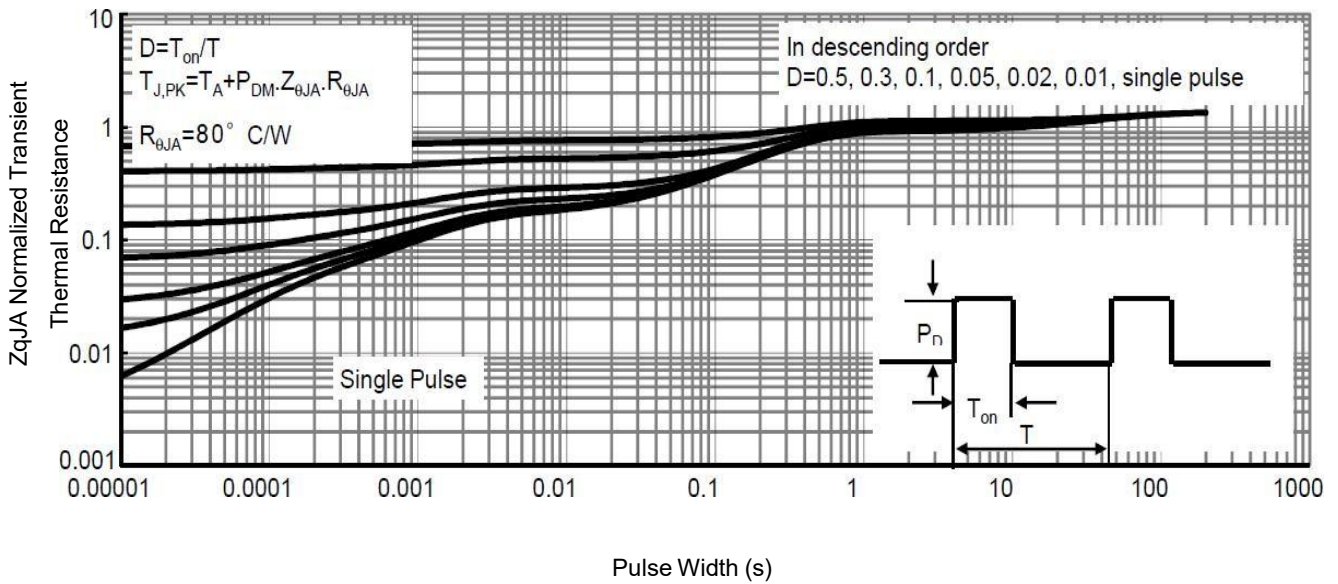


Fig9. Normalized Maximum Transient Thermal Impedance

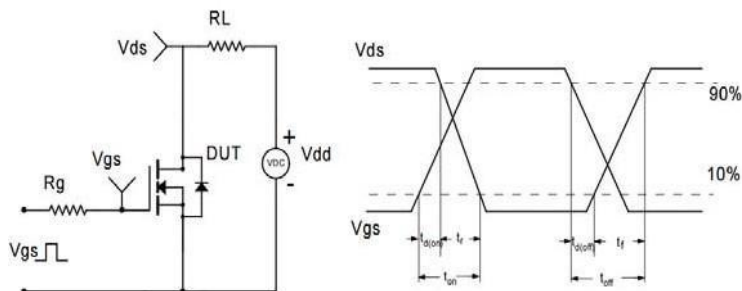
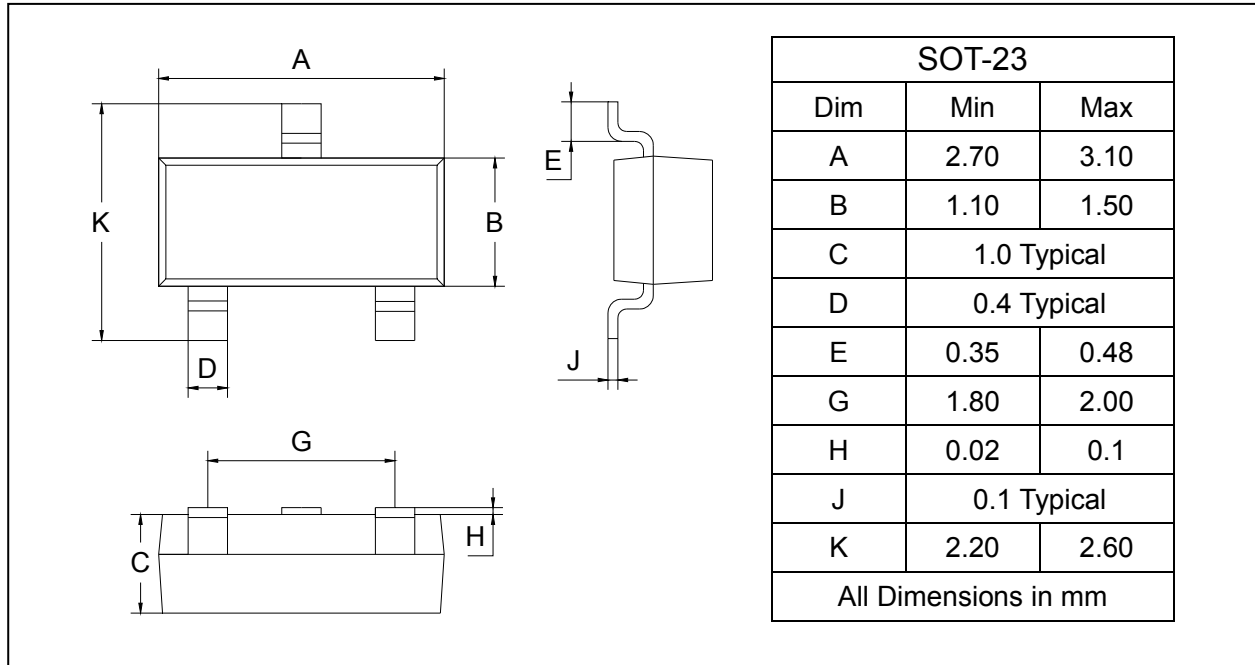


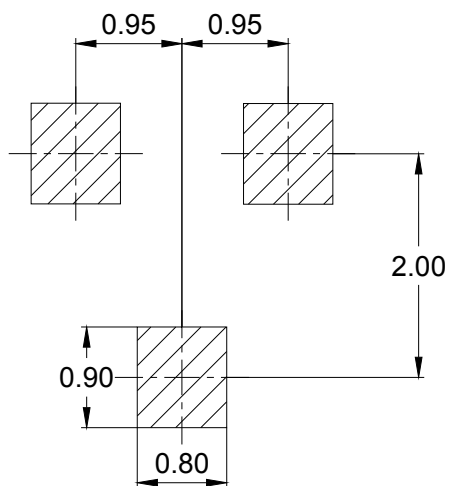
Fig10. Switching Time Test Circuit and waveforms

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



Unit : mm