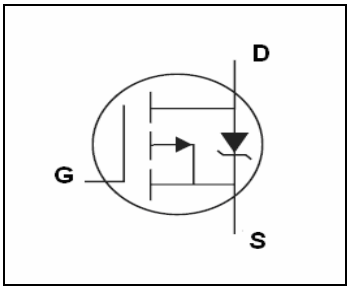
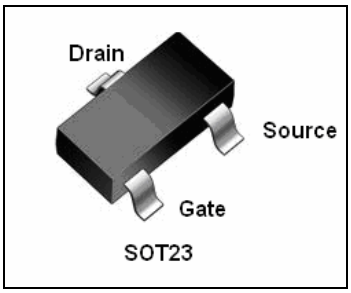
Features

- P-Channel
- Enhancement mode
- Low on-resistance $R_{DS(on)}$ @ V_{GS}=-4.5 V
- Fast Switching
- Pb-free lead plating; RoHS compliant
- Green product

Pb-Free RoHS HF Halogen-Free

V_{DS}	-30	V
$R_{DS(on),typ.}$ @ Vgs=-10V	85	mΩ
$R_{DS(on),typ.}$ @ Vgs=-4.5V	100	mΩ
I_D	-2.8	A





Order Information

Product	Marking	Package	Packaging	Min Unit Quantity
VS3403AC	A3V3	SOT23	3000/Reel	6000

Maximum ratings, at T_j=25 °C, unless otherwise specified

Symbol	Parameter		Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage		-30	V
I_D	Continuous drain current@V_{GS}=10V	T_C=25°C	-2.8	A
		T_A=70°C	-1.8	A
I_{DM}	Pulse drain current tested ①	T_C=25°C	-11.2	A
P_D	Maximum power dissipation	T_C=25°C	1.3	W
V_{GS}	Gate-Source voltage		±12	V
T_{STG} T_J	Storage and operating temperature range		-55 to 150	°C
Thermal characteristics				
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		125	°C/W

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	-30	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current (Tc=25℃)	V_{DS}=-30V,V_{GS}=0V	--	--	-1	μA
	Zero Gate Voltage Drain Current (Tc=125℃)	V_{DS}=-30V,V_{GS}=0V	--	--	-100	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±12V,V_{DS}=0V	--	--	±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=-250μA	-0.6	-1.0	-1.4	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=-10V, I_D=-2.8A	--	85	110	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=-4.5V, I_D=-2.0A	--	100	130	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=-2.5V, I_D=-1.0A	--	145	180	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=-12V,V_{GS}=0V, f=1MHz	--	500	--	pF
C_{oss}	Output Capacitance		--	60	--	pF
C_{rss}	Reverse Transfer Capacitance		--	40	--	pF
Q_g	Total Gate Charge	V_{DS}=-15V,I_D=-2.0A, V_{GS}=-4.5V	--	4.5	--	nC
Q_{gs}	Gate-Source Charge		--	0.8	--	nC
Q_{gd}	Gate-Drain Charge		--	1.3	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=-15V, I_D=-2A, R_G=6Ω, V_{GS}=-4.5V, RL=5Ω,	--	5	--	nS
t_r	Turn-on Rise Time		--	4	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	28	--	nS
t_f	Turn-Off Fall Time		--	8	--	nS
Source- Drain Diode Characteristics						
I_{SD}	Source-drain current(Body Diode)	T_c=25℃	--	--	-2.6①	A
V_{SD}	Forward on voltage	T_j=25℃,I_{SD}=-2A, V_{GS}=0V	--	-0.85	-1.3	V

Notes: ① Pulse test ; Pulse width≤300μs, duty cycle≤2%.

Typical Characteristics

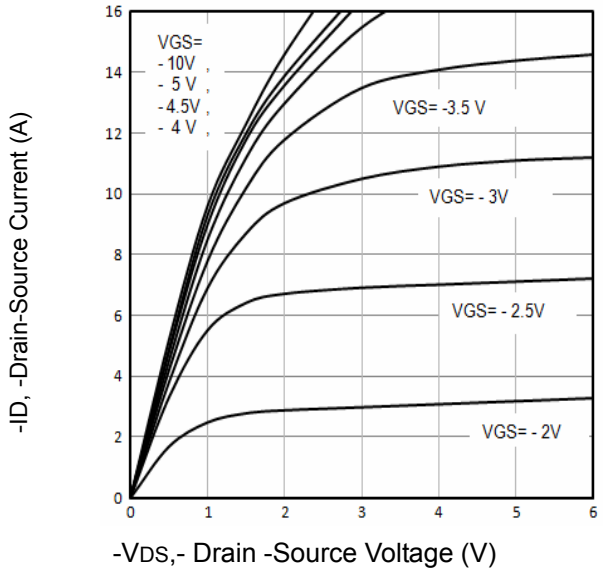


Fig1. Typical Output Characteristics

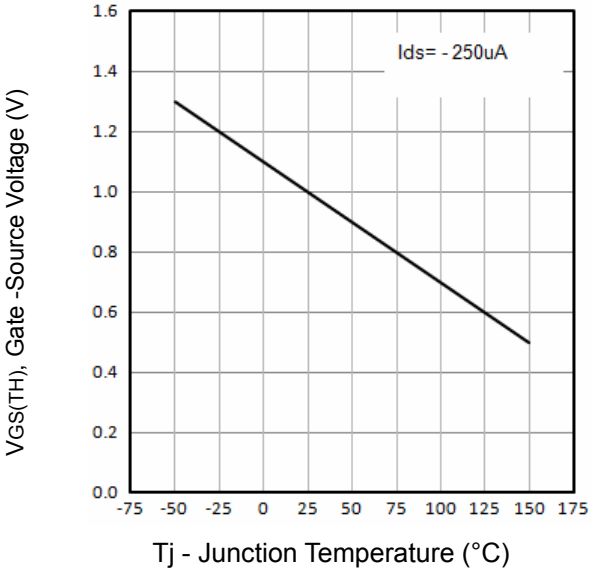


Fig2. Threshold Voltage Vs. Temperature

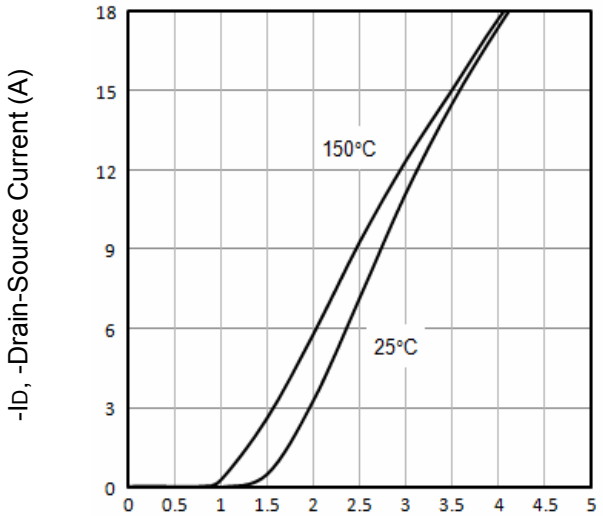


Fig3. Typical Transfer Characteristics

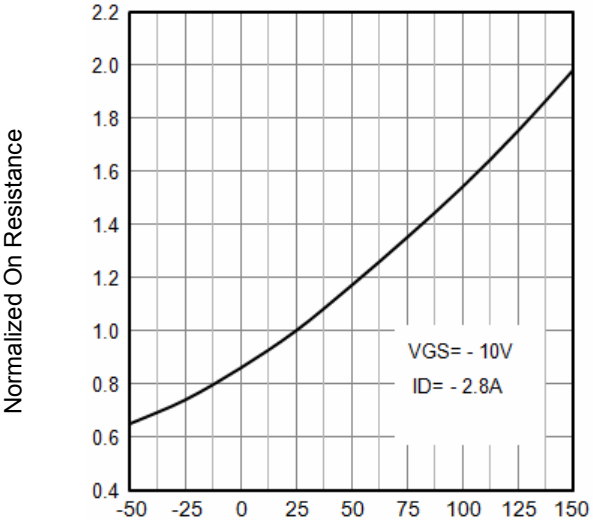


Fig4. Normalized On-Resistance Vs. Temperature

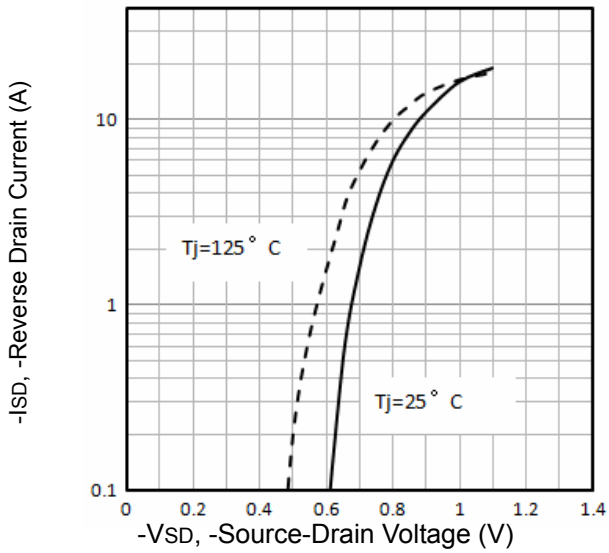


Fig5. Typical Source-Drain Diode Forward Voltage

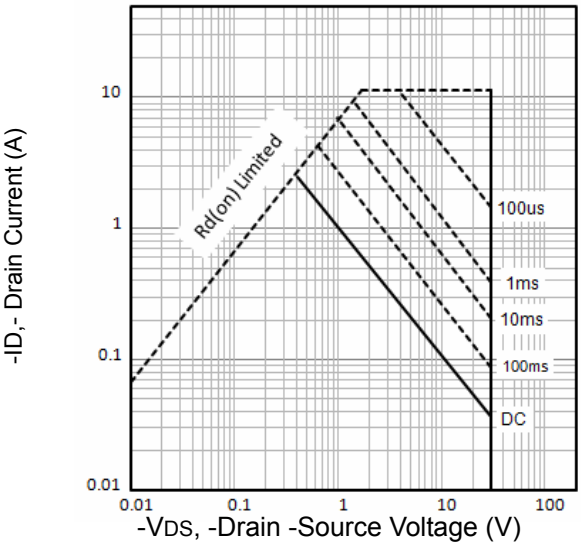


Fig6. Maximum Safe Operating Area

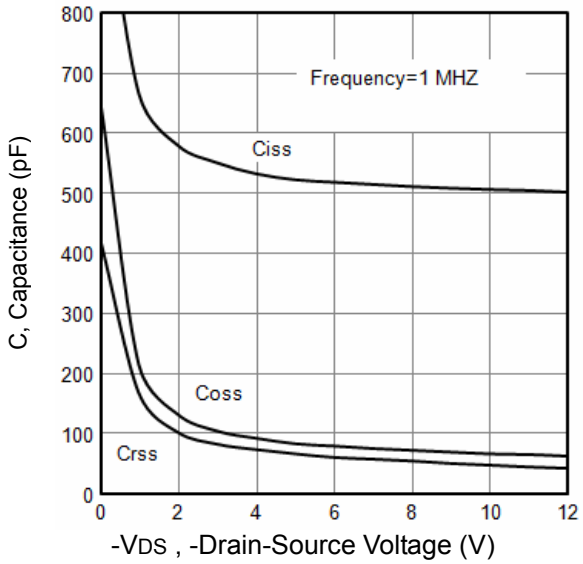


Fig7. Typical Capacitance Vs.Drain-Source Voltage

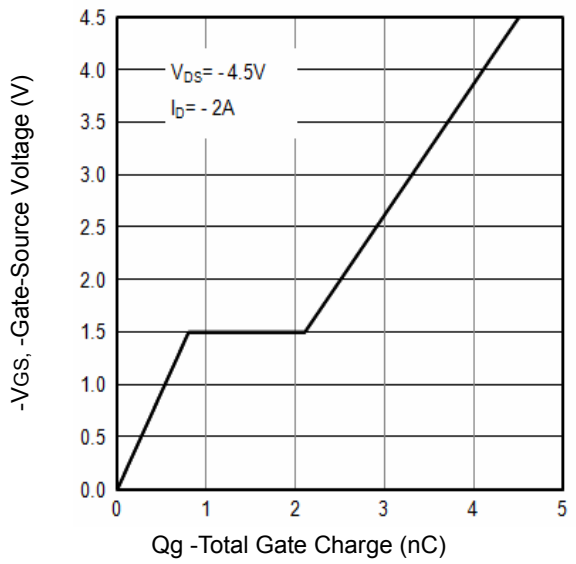


Fig8. Typical Gate Charge Vs.Gate-Source Voltage

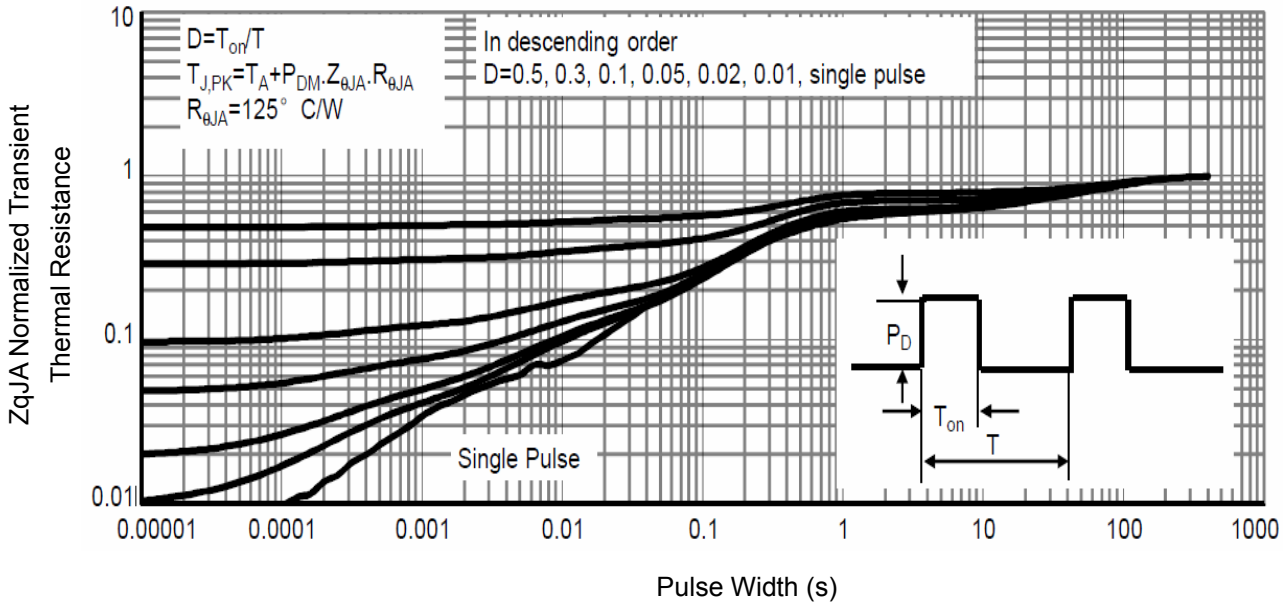


Figure 9: Normalized Maximum Transient Thermal

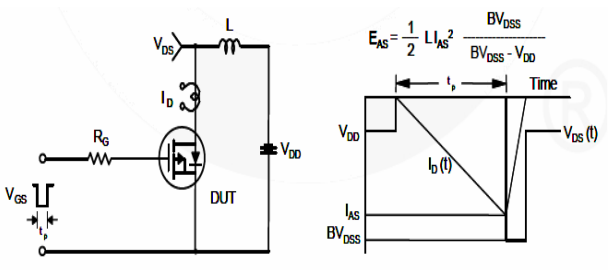


Fig10. Unclamped Inductive Test Circuit and Waveforms

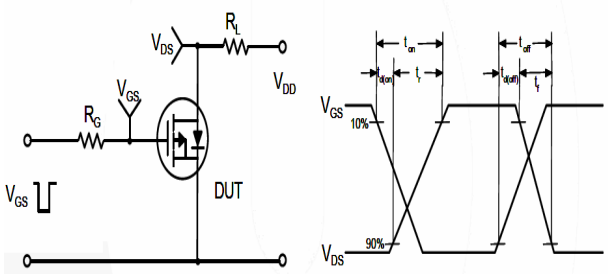
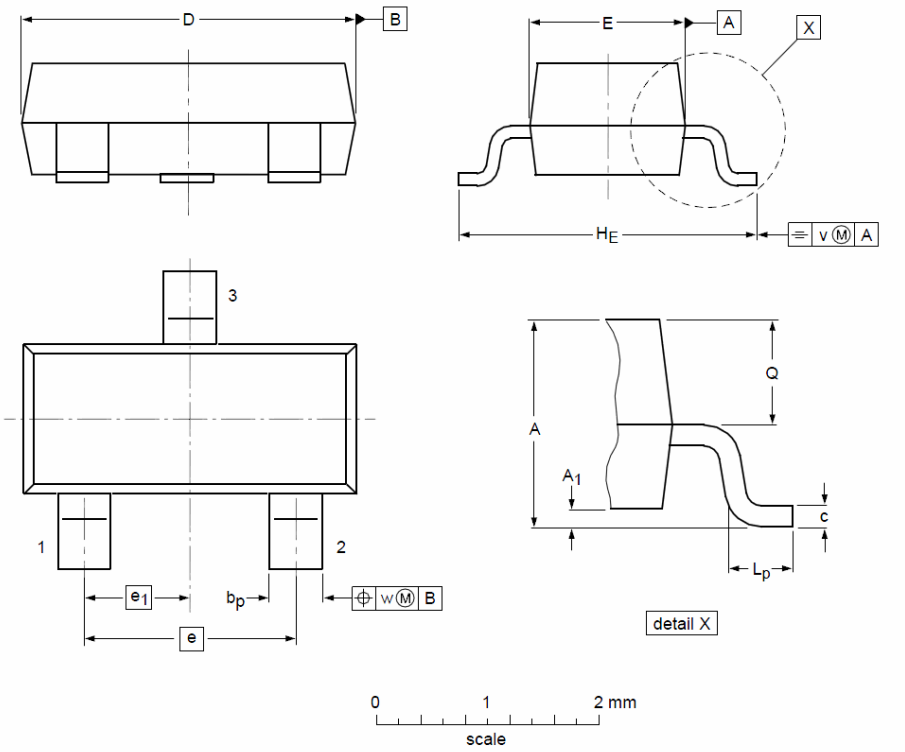


Fig11. Switching Time Test Circuit and waveforms

SOT23 Package Outline Data



DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.03	1.10	**A_1**	0.01	0.05	0.10
b_p	0.38	0.42	0.48	**c**	0.09	0.13	0.15
D	2.80	2.92	3.00	**E**	1.20	1.33	1.40
e	--	1.90	--	**e_1**	--	0.95	--
H_E	2.10	2.40	2.50	**L_p**	0.15	0.23	0.45
Q	0.45	0.49	0.55	**v**	--	0.20	--
w	--	0.10	--				

Customer Service

Sales and Service:

Sales@vgsemi.com

Vanguard Semiconductor CO., LTD

TEL: (86-755) -26902410

FAX: (86-755) -26907027

WEB: www.vgsemi.com