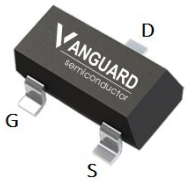
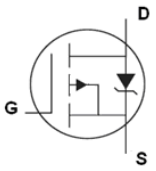
Features

- P-Channel，-2.5V Logic Level Control
- Enhancement mode
- Low on-resistance $R_{DS(on)}$ @ V_{GS}=-2.5 V
- Fast Switching
- Pb-free lead plating; RoHS compliant; Halogen Free

V_{DS}	-20	V
$R_{DS(on),TYP}$ @V_{GS}=-4.5V	25	mΩ
$R_{DS(on),TYP}$ @V_{GS}=-2.5V	34	mΩ
I_D	-6	A

SOT23-3L





Pb-Free RoHS Halogen-Free

Part ID	Package Type	Marking	Tape and reel information
VS2522AL	SOT23-3L	VS14	3000pcs/reel

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

Symbol	Parameter		Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage		-20	V
V_{GS}	Gate-Source voltage		±12	V
I_S	Diode continuous forward current	T_A =25°C	-1	A
I_D	Continuous drain current @V_{GS}=-4.5V	T_A =25°C	-6	A
		T_A =100°C	-3.7	A
I_{DM}	Pulse drain current tested ①	T_A =25°C	-24	A
P_D	Maximum power dissipation	T_A =25°C	1.25	W
MSL			Level 3	
T_{STG}, T_J	Storage and junction temperature range		-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
$R_{\theta JL}$	Thermal Resistance，Junction-to-Lead	60	°C/W
$R_{\theta JA}$	Thermal Resistance，Junction-to-Ambient	100	°C/W

Typical Electrical Characteristics

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	-20	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current(T_j=25℃)	V_{DS}=-20V,V_{GS}=0V	--	--	-1	μA
	Zero Gate Voltage Drain Current(T_j=125℃)	V_{DS}=-20V,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	-0.4	-0.6	-1	V
$R_{DS(ON)}$	Drain-Source On-State Resistance ②	V_{GS}=-4.5V, I_D=-4A	--	25	32	mΩ
		V_{GS}=-2.5V, I_D=-2A	--	34	44	mΩ
Dynamic Electrical Characteristics @ T_j= 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=-10V,V_{GS}=0V, f=1MHz	1100	1630	2100	pF
C_{oss}	Output Capacitance		90	170	250	pF
C_{rss}	Reverse Transfer Capacitance		80	140	200	pF
R_g	Gate Resistance	f=1MHz	--	8.4	--	Ω
Q_g	Total Gate Charge	V_{DS}=-10V,I_D=-4A, V_{GS}=-4.5V	--	20	--	nC
Q_{gs}	Gate-Source Charge		--	7	--	nC
Q_{gd}	Gate-Drain Charge		--	7.5	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=-10 V, I_D=-4A, R_G=3Ω, V_{GS}=-4.5V	--	0.75	--	μs
t_r	Turn-on Rise Time		--	1.2	--	μs
$t_{d(off)}$	Turn-Off Delay Time		--	4.1	--	μs
t_f	Turn-Off Fall Time		--	3.9	--	μs
Source- Drain Diode Characteristics@ T_j= 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage	I_{SD}=-4A,V_{GS}=0V	--	-0.8	-1.2	V
t_{rr}	Reverse Recovery Time	T_j=25℃,I_{sd}=-4A, V_{GS}=0V di/dt=-100A/μs	--	18	--	ns
Q_{rr}	Reverse Recovery Charge			11		nC

NOTE:

① Repetitive rating; pulse width limited by max junction temperature.

② Pulse width ≤ 300μs; duty cycle≤ 2%.

Typical Characteristics

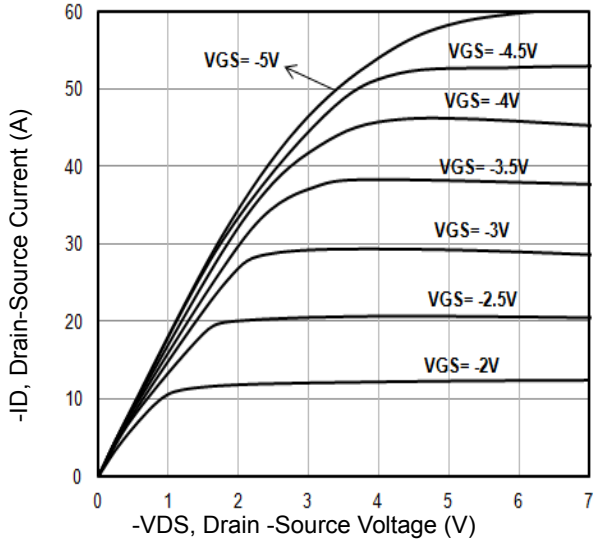


Fig1. Typical Output Characteristics

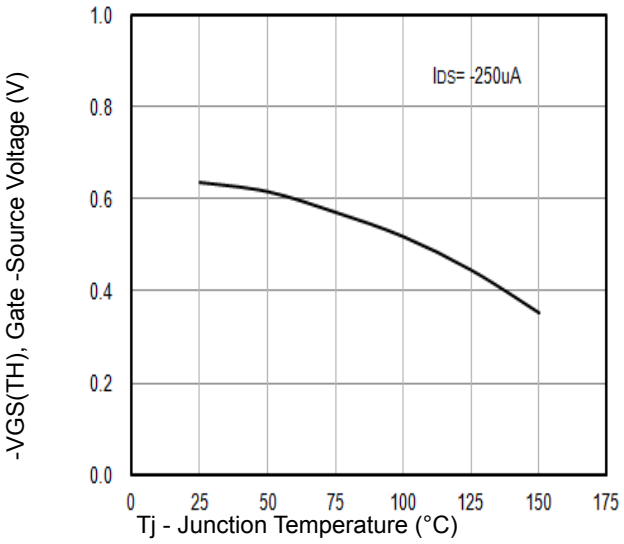


Fig2. $-V_{GS(TH)}$ Gate -Source Voltage Vs.Tj

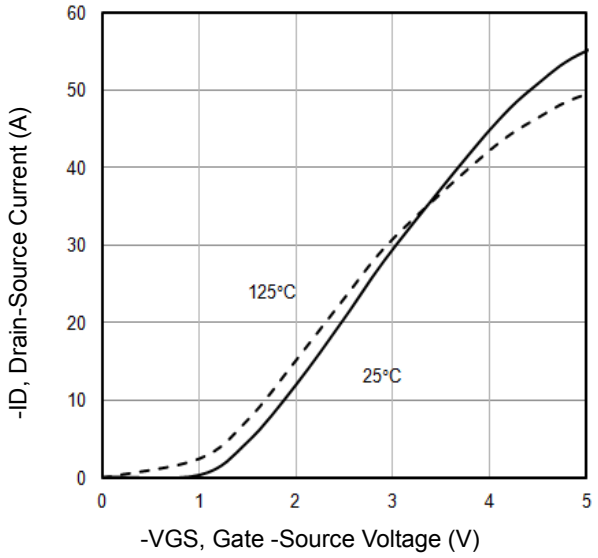


Fig3. Typical Transfer Characteristics

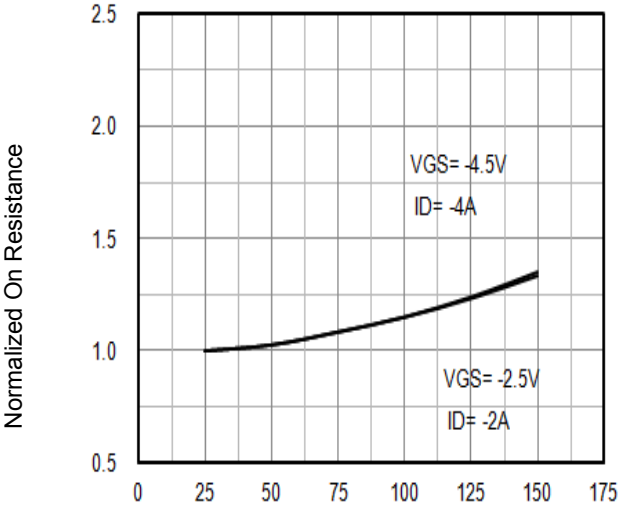


Fig4. Normalized On-Resistance Vs. Tj

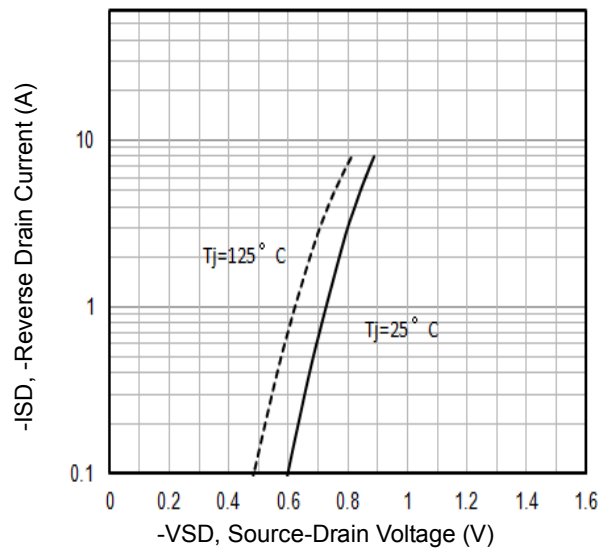


Fig5. Typical Source-Drain Diode Forward Voltage

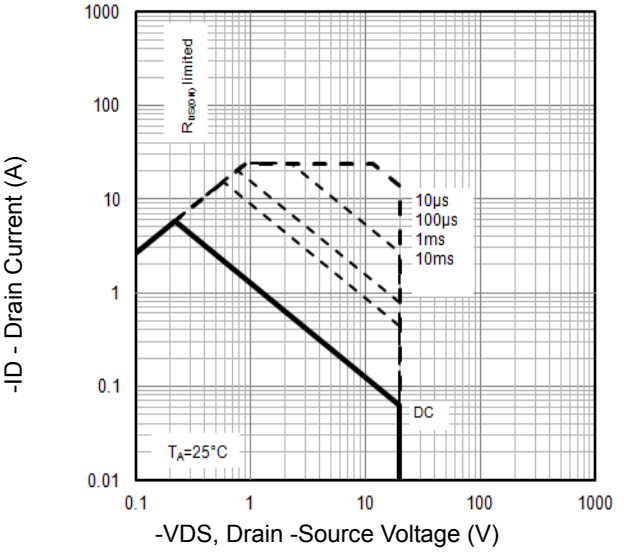


Fig6. Maximum Safe Operating Area

Typical Characteristics

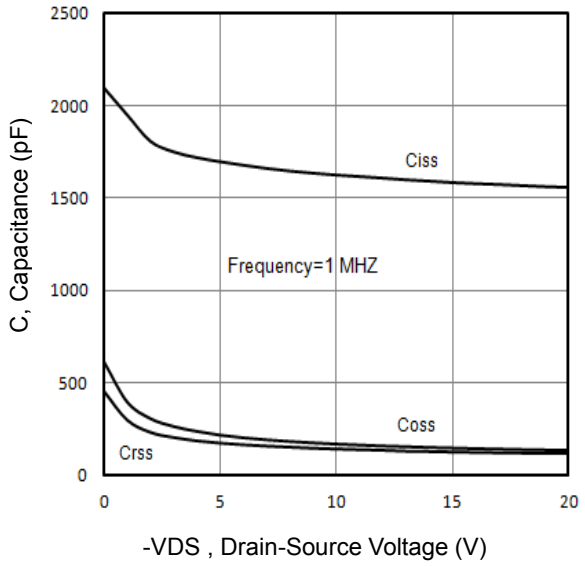


Fig7. Typical Capacitance Vs.Drain-Source Voltage

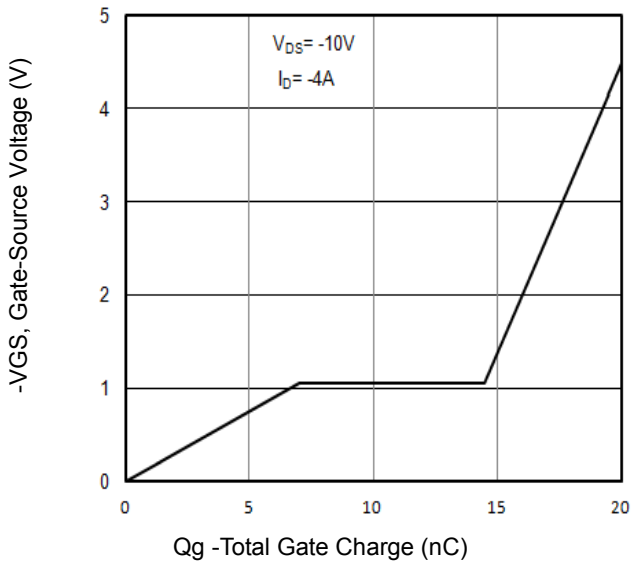


Fig8. Typical Gate Charge Vs.Gate-Source Voltage

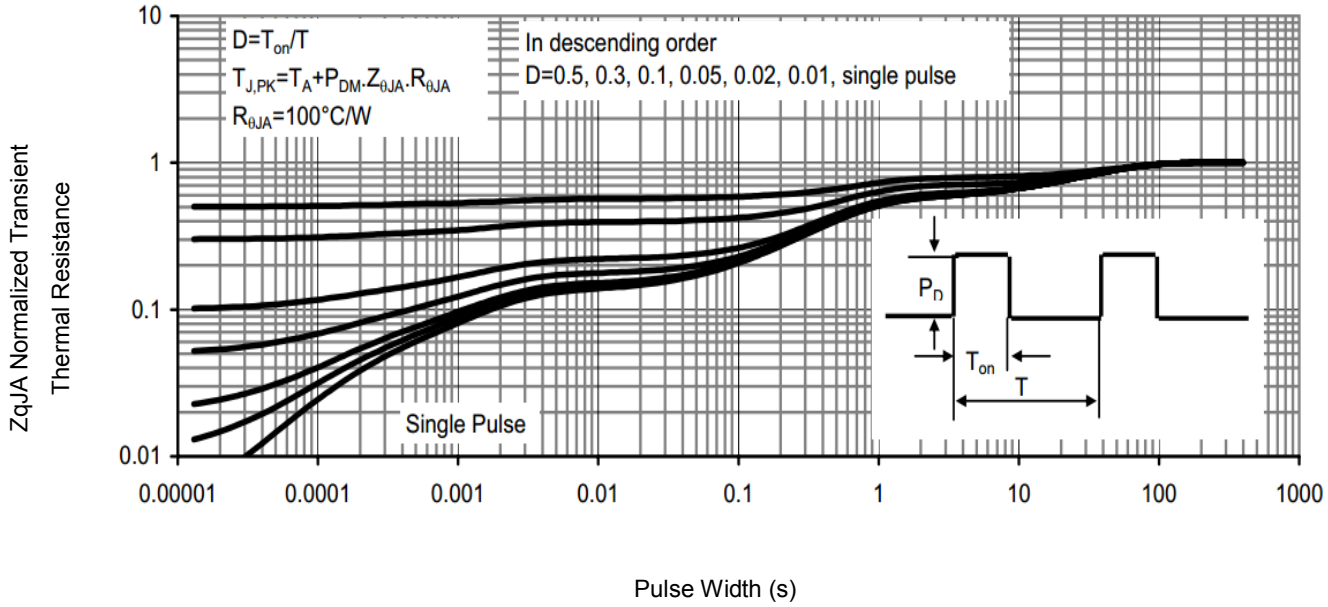


Fig9. Normalized Maximum Transient Thermal Impedance

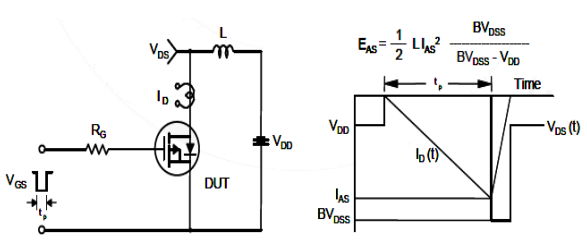


Fig10. Unclamped Inductive Test Circuit and waveforms

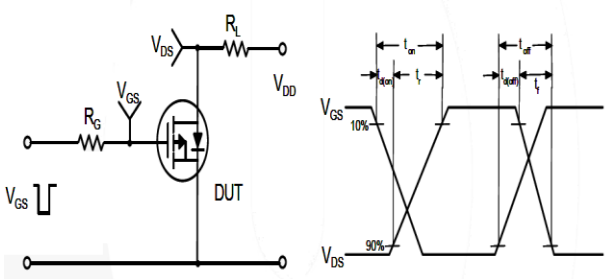
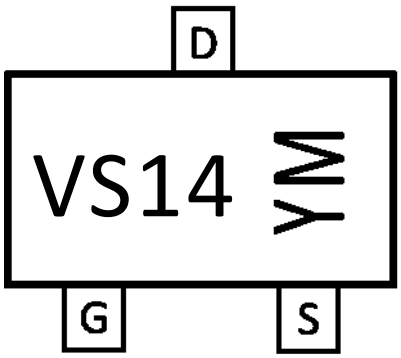


Fig11. Switching Time Test Circuit and waveforms

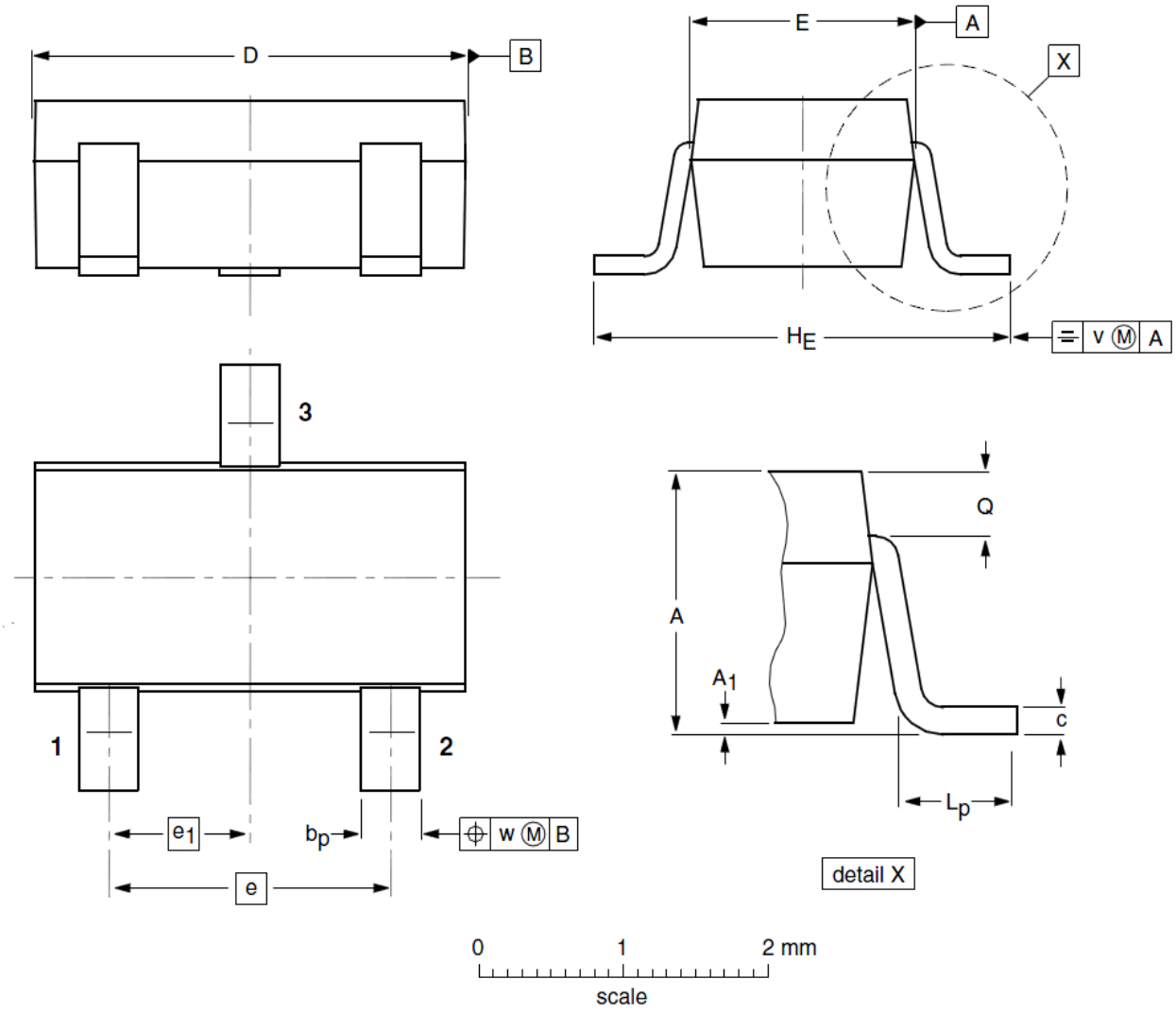
Marking Information



VS14： Part Number

YM： Date Code，Y means assembly year，M means assembly month

SOT23-3L Package Outline Data



Symbol	Dimensions (unit: mm)		
	Min	Typ	Max
A	0.90	1.07	1.25
A_1	0.01	0.06	0.10
b_p	0.30	0.35	0.50
c	0.10	0.15	0.20
D	2.70	2.92	3.10
E	1.30	1.60	1.70
e	--	1.90	--
e_1	--	0.95	--
H_E	2.50	2.80	3.00
L_p	0.30	0.40	0.60
Q	0.23	0.29	0.33
v	--	0.20	--
w	--	0.20	--

Customer Service

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