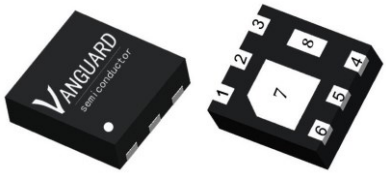
V_{DS}	-30	V
$R_{DS(on),TYP}$@ V_{GS}=-10 V	22	mΩ
$R_{DS(on),TYP}$@ V_{GS}=-4.5 V	37	mΩ
I_D	-30	A

Features

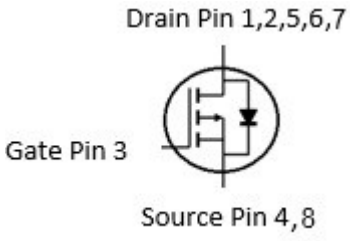
- P-Channel，-5V Logic Level Control
- Enhancement mode
- Low on-resistance $R_{DS(on)}$ @ V_{GS}=-4.5 V
- Fast Switching
- Pb-free lead plating; RoHS compliant

Pb-Free RoHS HF Halogen-Free

DFN2x2



Part ID	Package Type	Marking	Tape and reel information
VS3522AA	DFN2x2	3522	3000PCS/Reel



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

Symbol	Parameter		Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage		-30	V
VGS	Gate-Source voltage		±20	V
I_S	Diode continuous forward current	T_C =25°C	-30	A
I_D	Continuous drain current @VGS=-10V	T_C =25°C	-30	A
		T_C =100°C	-19	A
I_{DM}	Pulse drain current tested ①	T_C =25°C	-90	A
I_{DSM}	Continuous drain current @VGS=-10V	T_A=25°C	8.7	A
		T_A=70°C	7	A
P_D	Maximum power dissipation	T_C =25°C	30	W
P_{DSM}	Maximum power dissipation ②	T_A=25°C	2.5	W
MSL			Level 3	
T_{STG}, T_J	Storage and Junction Temperature Range		-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	4.1	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	50	°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	V_{DS}=-30V,V_{GS}=0V	--	--	-1	μA
	Zero Gate Voltage Drain Current(T_j=125℃)	V_{DS}=-30V,V_{GS}=0V	--	--	-100	μA
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	-1.3	-2	-2.4	V
$R_{DS(ON)}$	Drain-Source On-State Resistance ③	V_{GS}=-10V, I_D=-4.5A	--	22	29	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance ③	V_{GS}=-4.5V, I_D=-4A	--	37	48	mΩ
Dynamic Electrical Characteristics @ T_j = 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=-15V,V_{GS}=0V, f=1MHz	750	850	950	pF
C_{oss}	Output Capacitance		80	140	200	pF
C_{rss}	Reverse Transfer Capacitance		40	95	150	pF
R_g	Gate Resistance	f=1MHz	--	11	--	Ω
Q_g	Total Gate Charge	V_{DS}=-15V,I_D=-4.5A, V_{GS}=-10V	--	18.2	--	nC
Q_{gs}	Gate-Source Charge		--	4.9	--	nC
Q_{gd}	Gate-Drain Charge		--	5.6	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=-15V, I_D=-4.5A, R_G=0.75Ω, V_{GS}=-10V	--	10	--	nS
t_r	Turn-on Rise Time		--	32	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	24	--	nS
t_f	Turn-Off Fall Time		--	28	--	nS
Source- Drain Diode Characteristics@ T_j = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage	I_{SD}=-4.5A,V_{GS}=0V	--	-0.9	-1.2	V
t_{rr}	Reverse Recovery Time	T_j=25℃,I_{sd}=-4.5A, V_{GS}=0V di/dt=-100A/μs	--	25	--	nS
Q_{rr}	Reverse Recovery Charge			16		nC

NOTE:

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

② The power dissipation P_{DSM} is based on $R_{\theta JA}$ and the maximum allowed junction temperature of 150°C.

③ Pulse width ≤ 300μs; duty cycle≤ 2%.

Typical Characteristics

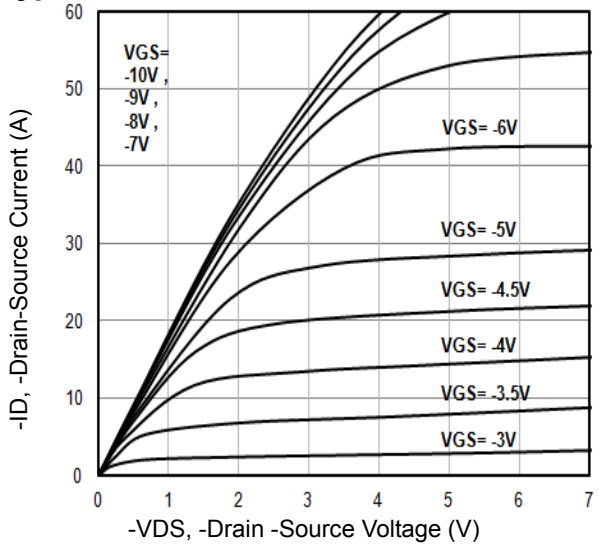


Fig1. Typical Output Characteristics

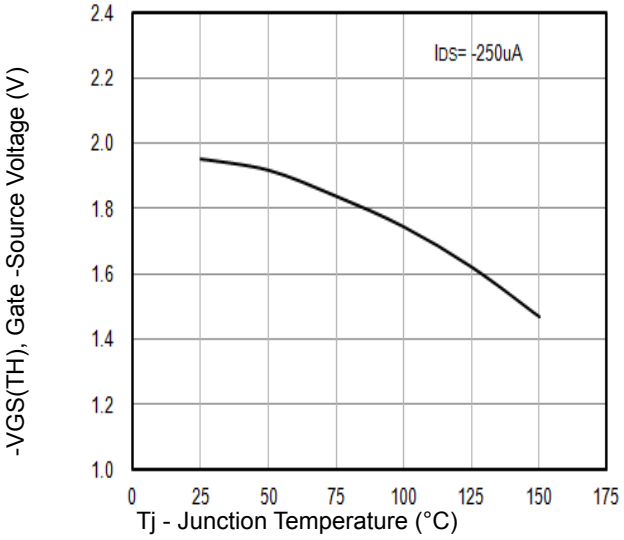


Fig2. $-V_{GS(TH)}$ Gate -Source Voltage Vs.Tj

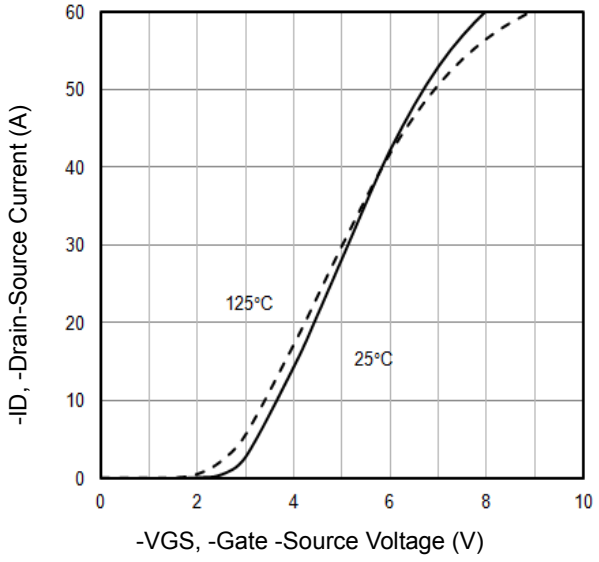


Fig3. Typical Transfer Characteristics

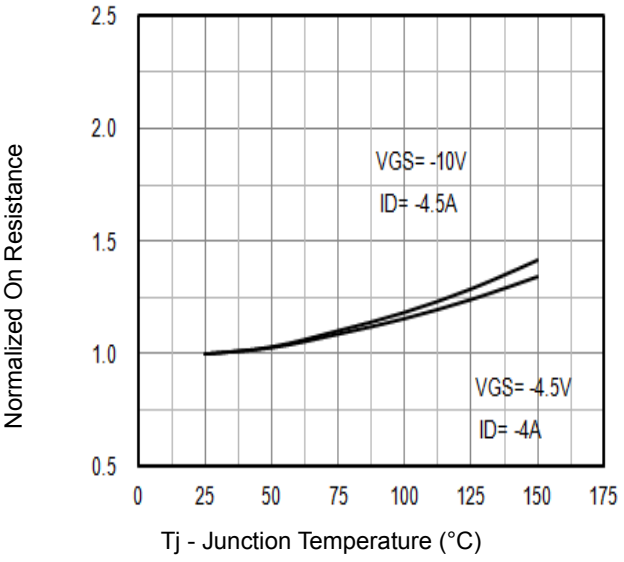


Fig4. Normalized On-Resistance Vs. Tj

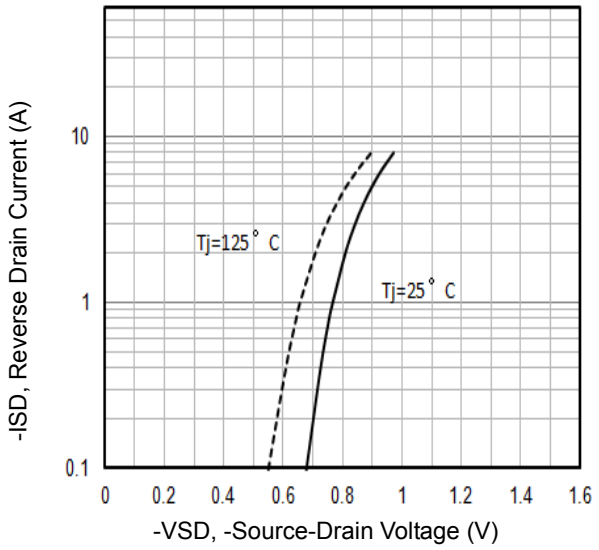


Fig5. Typical Source-Drain Diode Forward Voltage

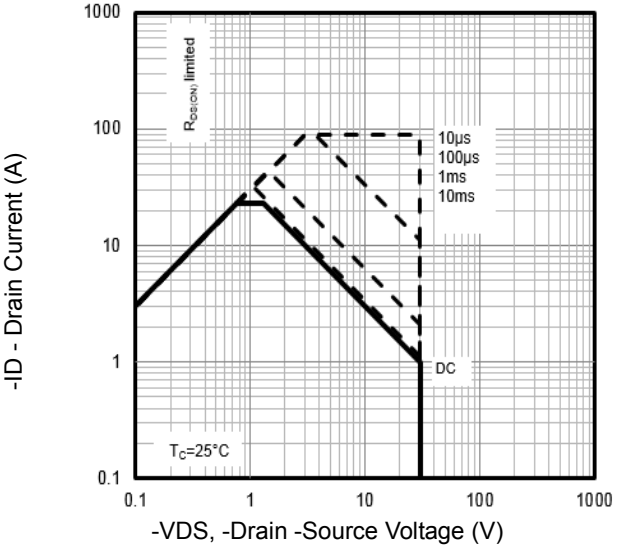


Fig6. Maximum Safe Operating Area

Typical Characteristics

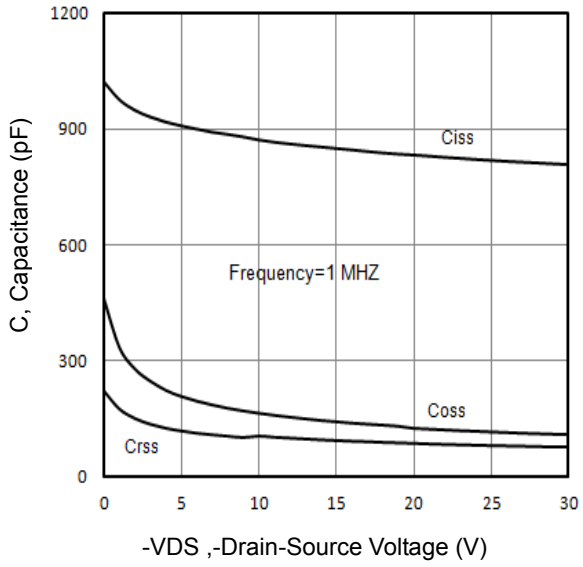


Fig7. Typical Capacitance Vs.Drain-Source Voltage

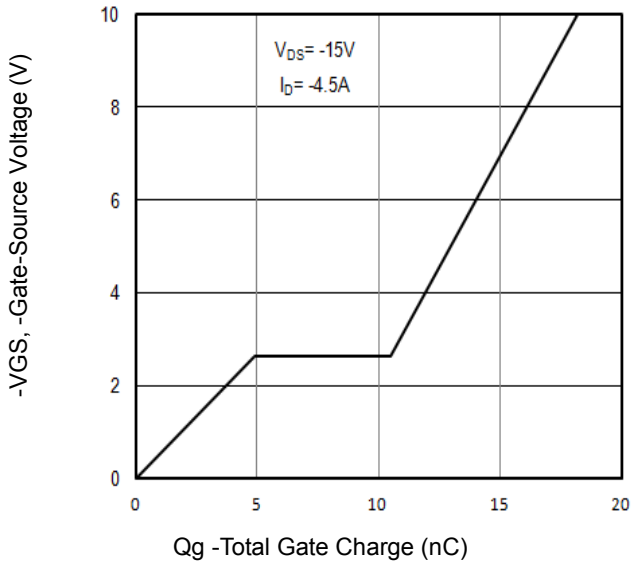


Fig8. Typical Gate Charge Vs.Gate-Source Voltage

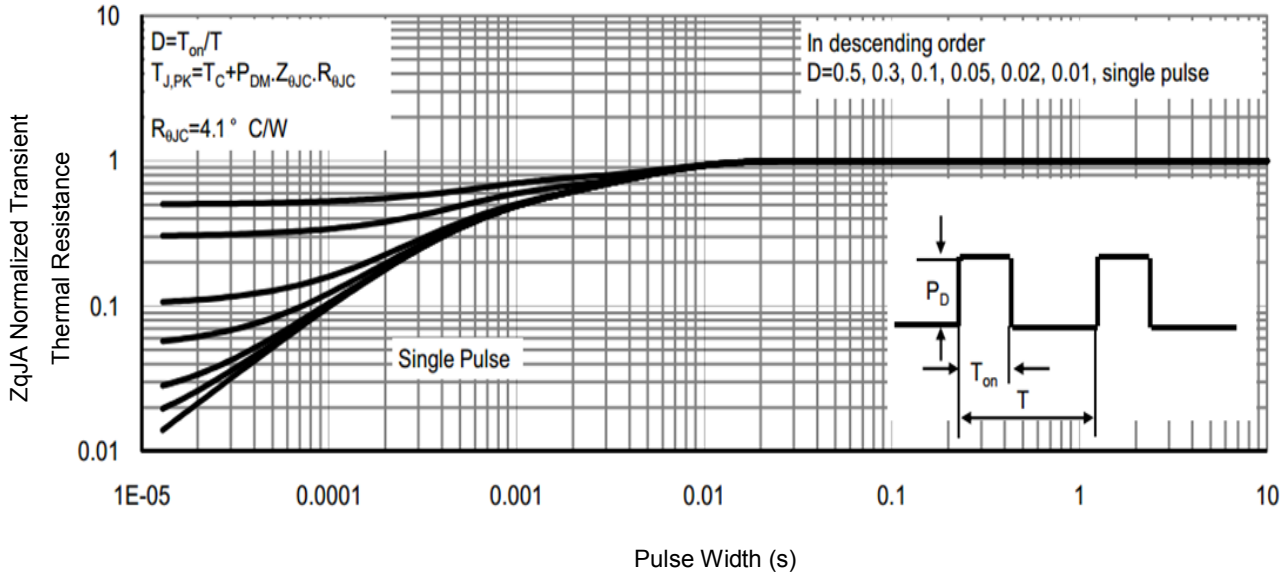


Fig9. Normalized Maximum Transient Thermal Impedance

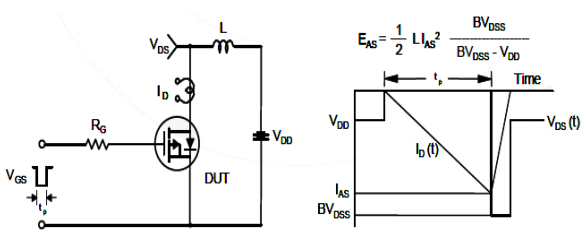


Fig10. Unclamped Inductive Test Circuit and waveforms

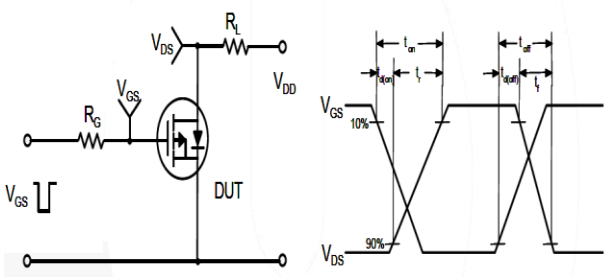
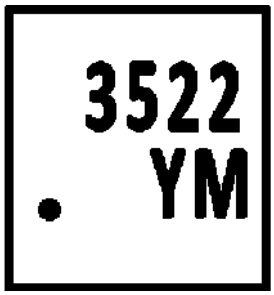


Fig11. Switching Time Test Circuit and waveforms

Marking Information

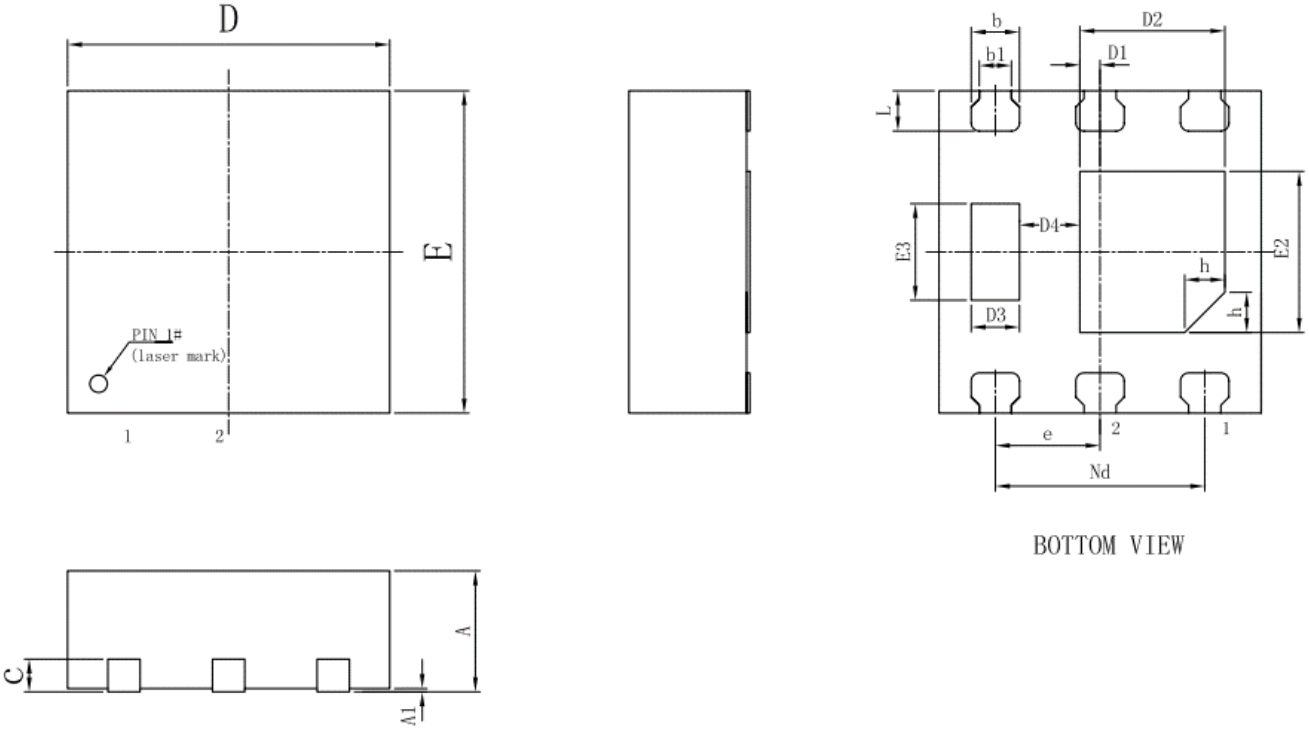


1st line：Part Number（3522）

2nd line：Y：Year Code，e.g. E means 2017

M：Month Code

DFN2x2 Package Outline Data



Symbol	Dimensions (unit: mm)		
	Min	Typ	Max
A	0.70	0.75	0.80
A1	--	0.02	0.05
b	0.25	0.30	0.35
b1	0.20 REF		
c	0.203 REF		
D	1.90	2.00	2.1
D1	0.08	0.125	0.18
D2	0.85	0.90	0.95
D3	0.25	0.3	0.35
D4	0.33	0.375	0.43
e	0.65 BSC		
Nd	1.30 BSC		
E	1.90	2.00	2.10
E2	0.95	1.00	1.05
E3	0.55	0.60	0.65
L	0.20	0.25	0.30
h	0.25 REF		

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