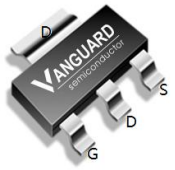
Features

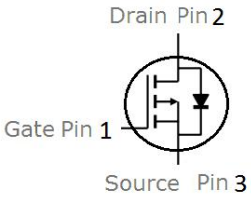
- P-Channel，-5V Logic Level Control
- Very low on-resistance RDS(on) @ V_{GS}=-4.5 V
- Fast Switching
- Enhancement mode
- Pb-free lead plating; RoHS compliant

V_{DS}	-100	V
$R_{DS(on),TYP}$@ V_{GS}=-10 V	250	mΩ
$R_{DS(on),TYP}$@ V_{GS}=-4.5V	260	mΩ
I_D	-2.2	A

SOT223



Pb-Free RoHS HF Halogen-Free



Part ID	Package Type	Marking	Tape and reel information
VSZ260P10MS	SOT223	260P10M	2500pcs/reel

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

Symbol	Parameter		Rating	Unit
Common Ratings				
V_{GS}	Gate-Source Voltage		±20	V
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		-100	V
T_{STG} T_J	Storage and operating temperature range①		-55 to 150	°C
I_S	Diode Continuous Forward Current	T_A=25°C	-2.2	A
Mounted on Large Heat Sink				
I_D	Continuous Drain current @V_{GS}=-10V	T_A=25°C	-2.2	A
		T_A=100°C	-1.4	A
I_{DM}	Pulse Drain Current Tested ②	T_A=25°C	-8	A
P_D	Maximum Power Dissipation	T_A=25°C	2.5	W
$R_{\theta JL}$	Thermal Resistance-Junction to Lead		35	°C/W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		50	°C/W
Drain-Source Avalanche Ratings				
EAS	Avalanche Energy, Single Pulsed ③		TBD	mJ

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	V_{DS}=-100V,V_{GS}=0V	--	--	-1	μA
	Zero Gate Voltage Drain Current(T_j=125℃)	V_{DS}=-100V,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	-1.0	-1.8	-2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance ②	V_{GS}=-10V, I_D=-2A	--	250	265	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance ②	V_{GS}=-4.5V, I_D=-1A	--	260	280	mΩ
Dynamic Electrical Characteristics @ T_j = 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=-30V,V_{GS}=0V, f=1MHz	--	960	--	pF
C_{oss}	Output Capacitance		--	40	--	pF
C_{rss}	Reverse Transfer Capacitance		--	25	--	pF
R_g	Gate Resistance	f=1MHz	--	82	--	Ω
Q_g	Total Gate Charge	V_{DS}=-50V,I_D=-2A, V_{GS}=-10V	--	13	--	nC
Q_{gs}	Gate-Source Charge		--	2.8	--	nC
Q_{gd}	Gate-Drain Charge		--	4.5	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=-50V, I_D=-2A, R_G=6.8Ω, V_{GS}=-10V	--	10	--	nS
t_r	Turn-on Rise Time		--	21	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	45	--	nS
t_f	Turn-Off Fall Time		--	17	--	nS
Source- Drain Diode Characteristics@ T_j = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage	I_{SD}=-2A,V_{GS}=0V	--	-0.83	-1.2	V
t_{rr}	Reverse Recovery Time	T_j=25℃,I_{sd}=-2A, V_{GS}=0V di/dt=-100A/μs	--	15	--	nS
Q_{rr}	Reverse Recovery Charge			48		nC

NOTE:

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

②Pulse width ≤ 300μs; duty cycle≤ 2%.

③Limited by TJmax, starting TJ = 25°C, L = 0.5mH,RG = 25Ω, IAS =TBD, VGS =-10V. Part not recommended for use above this value

Typical Characteristics

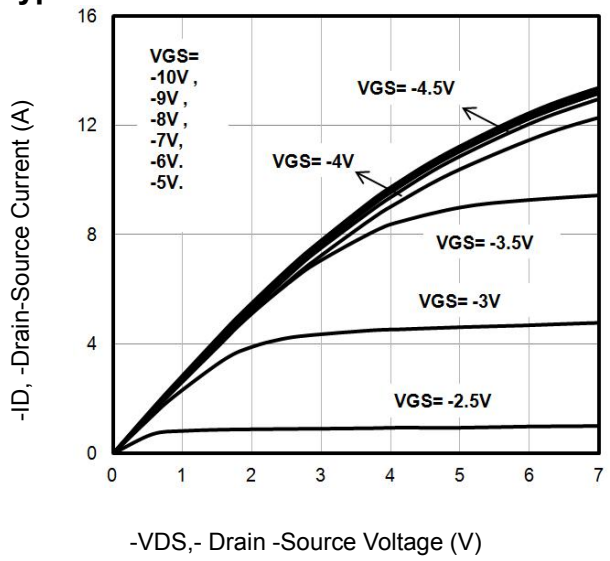


Fig1. Typical Output Characteristics

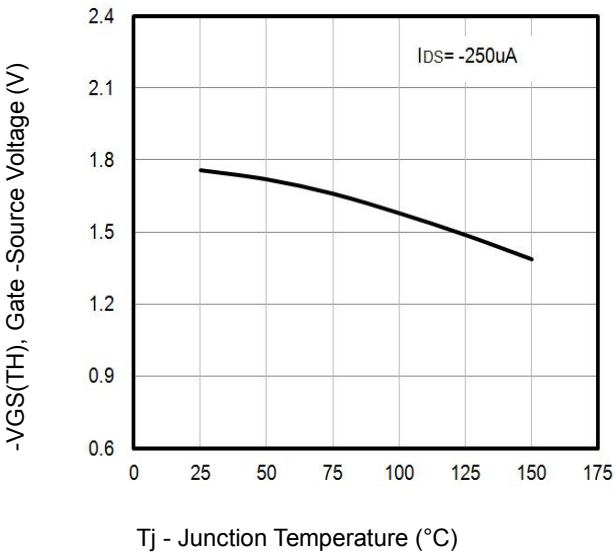


Fig2. $-V_{GS(TH)}$ Gate -Source Voltage Vs.Tj

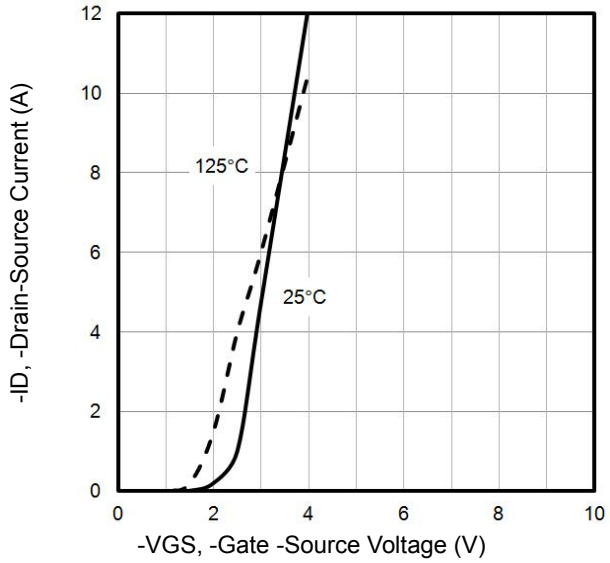


Fig3. Typical Transfer Characteristics

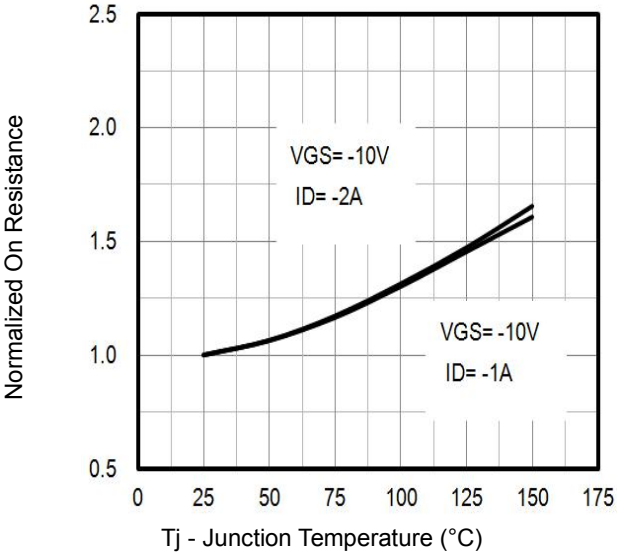


Fig4. Normalized On-Resistance Vs. Tj

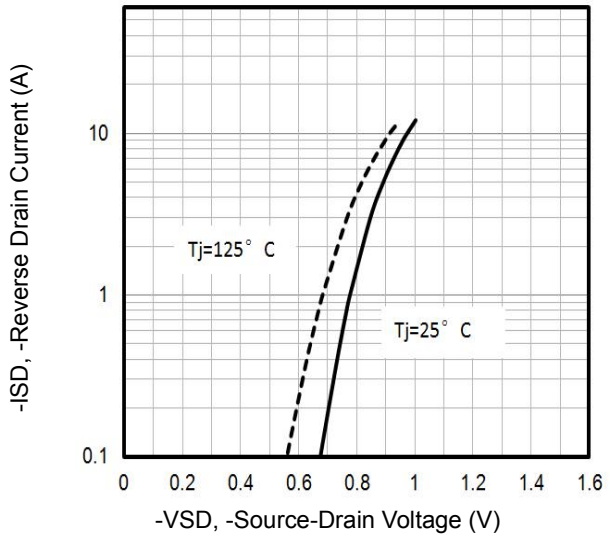


Fig5. Typical Source-Drain Diode Forward Voltage

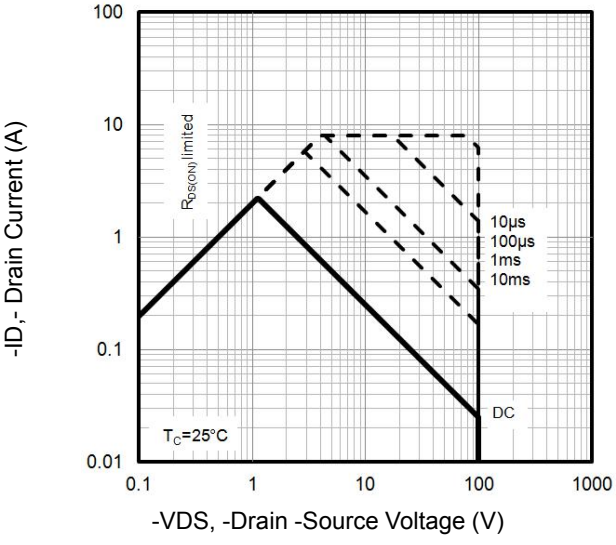


Fig6. Maximum Safe Operating Area

Typical Characteristics

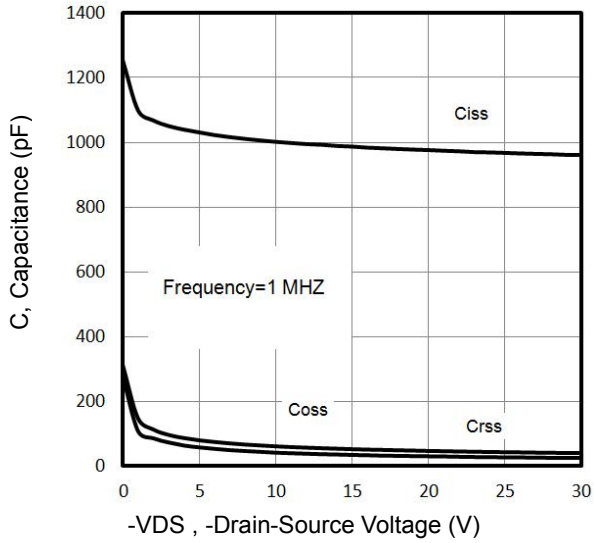


Fig7. Typical Capacitance Vs.Drain-Source Voltage

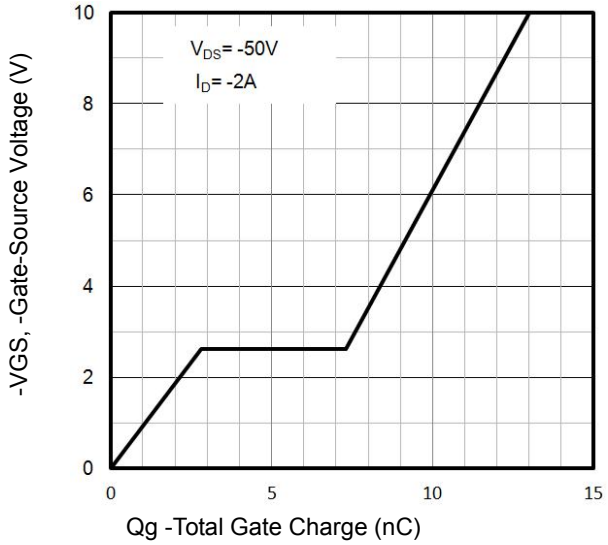


Fig8. Typical Gate Charge Vs.Gate-Source Voltage

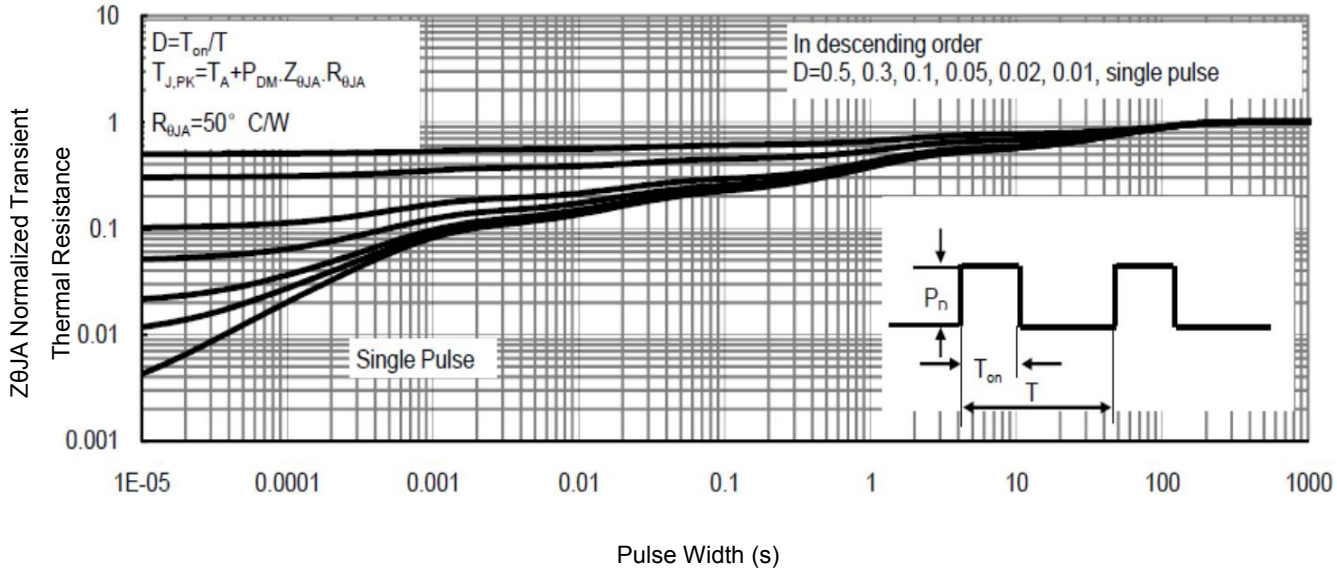


Fig9. Normalized Maximum Transient Thermal Impedance

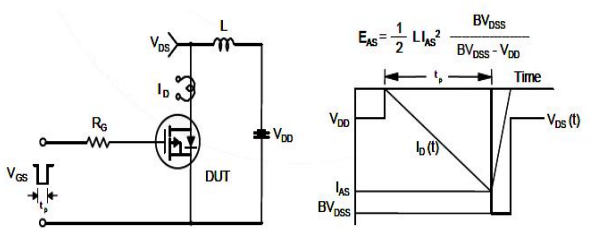


Fig10. Unclamped Inductive Test Circuit and Waveforms

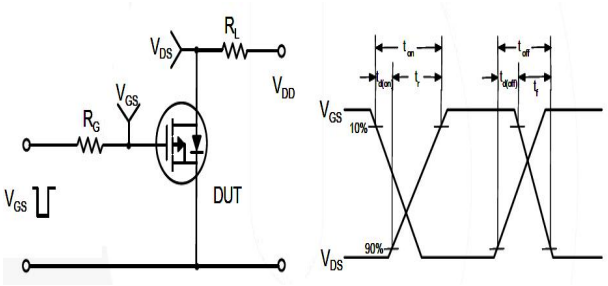
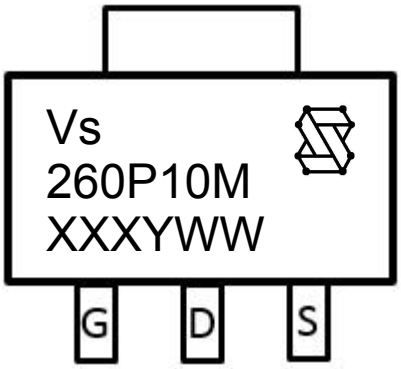


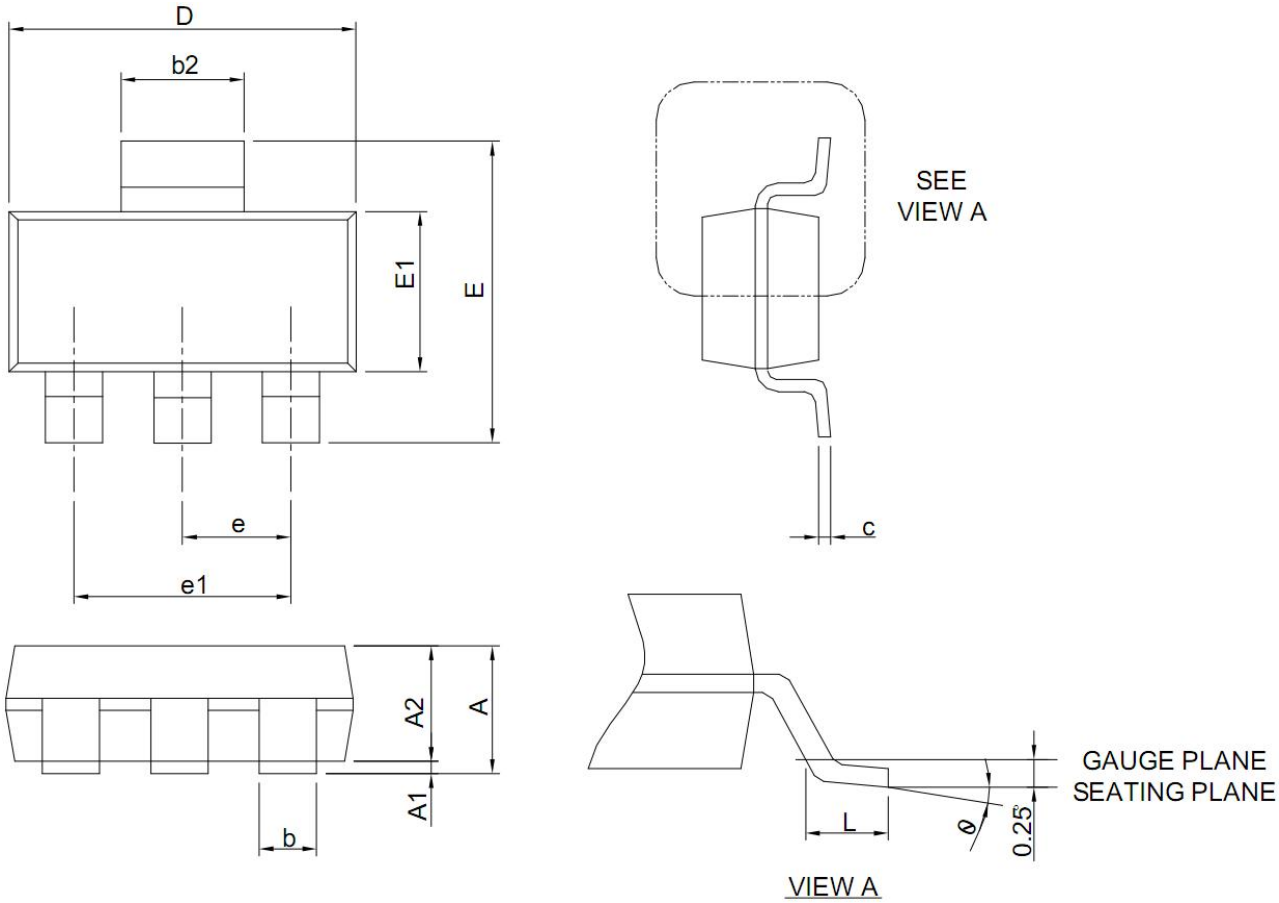
Fig11. Switching Time Test Circuit and waveforms

Marking Information



1st line: Vanguard Code（Vs）， Vanguard Logo
2nd line: Part Number（260P10M）
3rd line: Date code （XXXYWW）
XXX: Wafer Lot Number Code , code changed with Lot Number
Y: Year Code，(e.g. E=2017, F=2018, G=2019, H=2020, etc)
WW: Week Code (01 to 53)

SOT223 Package Outline Data



Symbol	Dimensions (unit: mm)		
	Min	Typ	Max
A	1.50	1.65	1.80
A1	0.02	0.06	0.10
A2	1.50	1.60	1.70
b	0.66	0.72	0.80
b2	2.90	3.00	3.10
c	0.23	0.30	0.35
D	6.30	6.50	6.70
E	6.70	7.00	7.30
E1	3.30	3.50	3.70
e	2.30 REF		
e1	4.60 REF		
L	0.75	--	1.15
θ	0 °	--	10 °

Notes:

1. Refer to JEDEC TO-261 variation AA
2. Dimensions "D" and "E1" do NOT include mold flash, tie bar burrs, gate burrs and interlead flash.

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