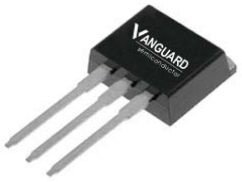
V_{DS}	80	V
$R_{DS(on),TYP}$@ V_{GS}=10 V	7.2	mΩ
I_D	105	A

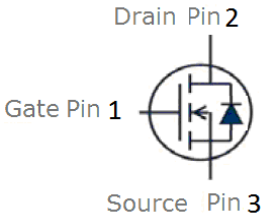
Features

- N-Channel，10V Logic Level Control
- Enhancement mode
- Very low on-resistance $R_{DS(on)}$ @ V_{GS}=10 V
- 100% Avalanche test
- Pb-free lead plating; RoHS compliant

TO-262



Pb-Free RoHS



Part ID	Package Type	Marking	Tape and reel information
VS80N08AN	TO-262	80N08AN	50PCS/Tube

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

Symbol	Parameter		Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage		80	V
I_S	Diode continuous forward current	T_A=25°C	105	A
I_D	Continuous drain current@VGS=10V	T_A=25°C	105	A
		T_A=100°C	75	A
I_{DM}	Pulse drain current tested ①	T_A=25°C	420	A
EAS	Avalanche energy, single pulsed ②		319	mJ
P_D	Maximum power dissipation	T_A=25°C	156	W
VGS	Gate-Source voltage		±25	V
T_{STG} T_J	Storage and operating temperature range		-55 to 175	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.96	°C/W
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	62.5	°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	80	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=80V,V_{GS}=0V	--	--	1	μA
	Zero Gate Voltage Drain Current(T_j=125℃)	V_{DS}=80V,V_{GS}=0V	--	--	100	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±25V,V_{DS}=0V	--	--	±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	2.0	3.0	4.0	V
$R_{DS(ON)}$	Drain-Source On-State Resistance③	V_{GS}=10V, I_D=40A	--	7.2	8	mΩ
Dynamic Electrical Characteristics @ T_j = 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=30V,V_{GS}=0V, f=1MHz	--	4110	--	pF
C_{oss}	Output Capacitance		--	395	--	pF
C_{rss}	Reverse Transfer Capacitance		--	255	--	pF
R_g	Gate Resistance	f=1MHz	--	0.9	--	Ω
Q_g	Total Gate Charge	V_{DS}=40V,I_D=40A, V_{GS}=10V	--	70	--	nC
Q_{gs}	Gate-Source Charge		--	17	--	nC
Q_{gd}	Gate-Drain Charge		--	21	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=40V, I_D=40A, R_G=3Ω, V_{GS}=10V	--	20	--	nS
t_r	Turn-on Rise Time		--	37	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	46	--	nS
t_f	Turn-Off Fall Time		--	25	--	nS
Source- Drain Diode Characteristics@ T_j = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage	I_{SD}=40A,V_{GS}=0V	--	0.9	1.2	V
t_{rr}	Reverse Recovery Time	T_j=25℃,I_{sd}=40A, V_{GS}=0V di/dt=100A/μs	--	55	--	nS
Q_{rr}	Reverse Recovery Charge			100		nC

NOTE:

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

② Limited by T_{Jmax}, starting T_J = 25°C, L = 0.5mH,R_G = 25Ω, I_{AS} = 28A, V_{GS} =10V. Part not recommended for use above this value

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

Typical Characteristics

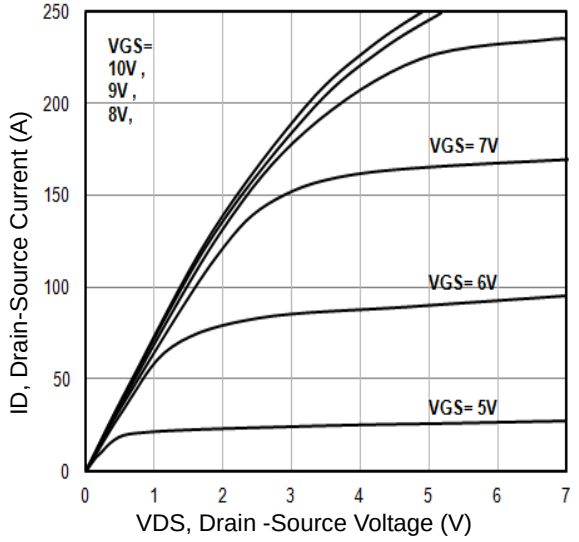


Fig1. Typical Output Characteristics

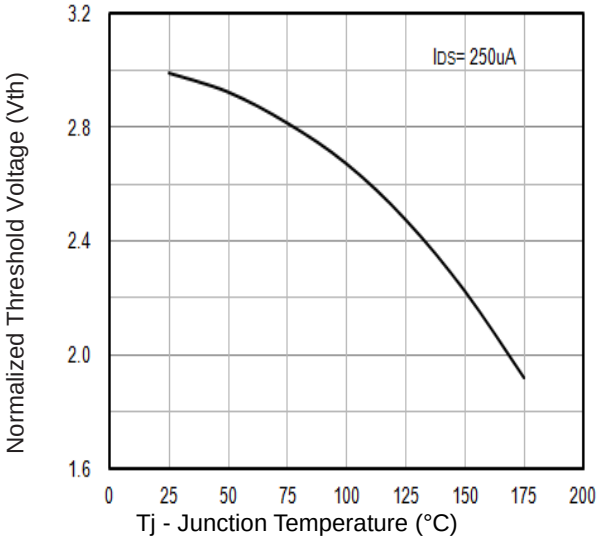


Fig2. $V_{GS(TH)}$ Gate -Source Voltage Vs.Tj

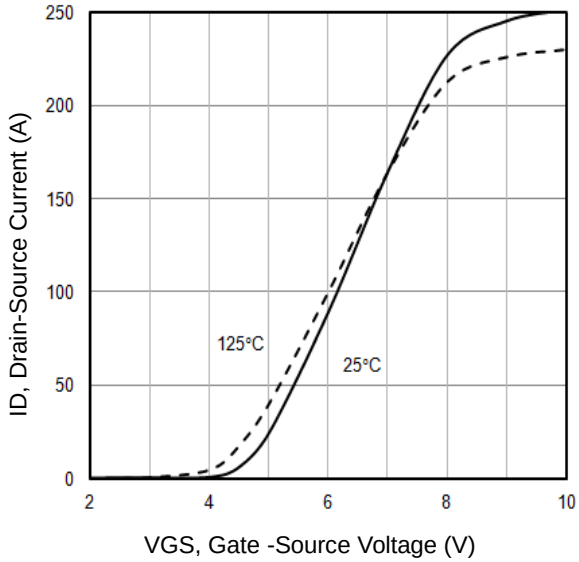


Fig3. Typical Transfer Characteristics

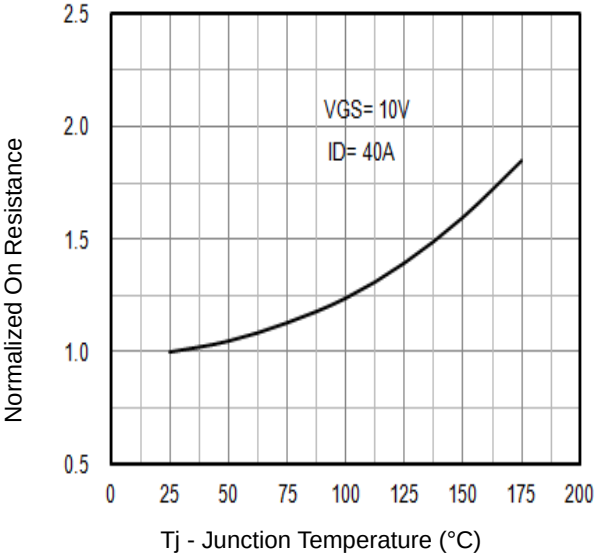


Fig4. Normalized On-Resistance Vs. Tj

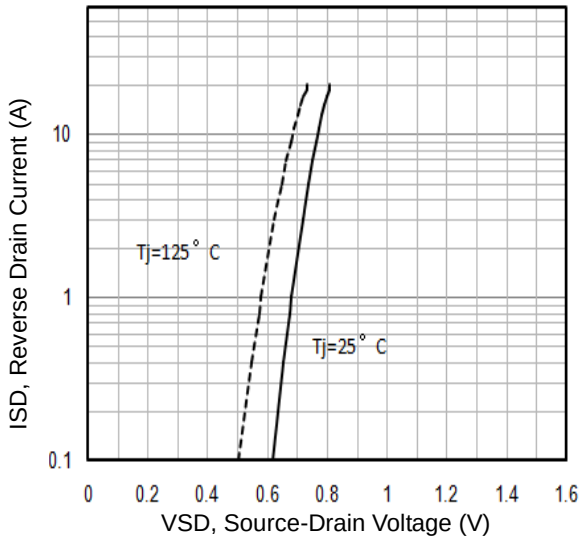


Fig5. Typical Source-Drain Diode Forward Voltage

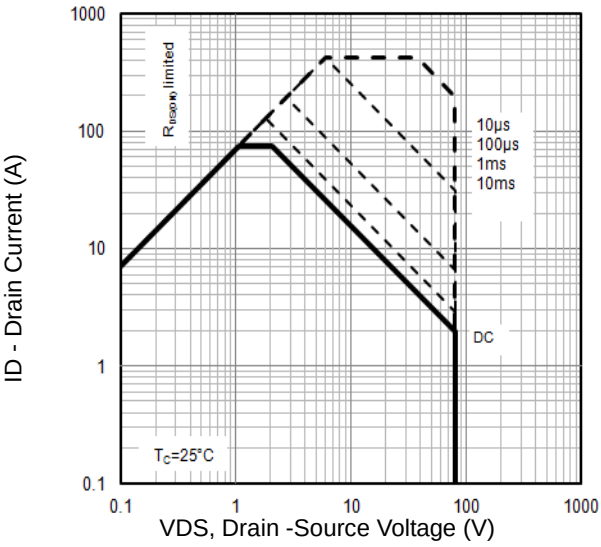


Fig6. Maximum Safe Operating Area

Typical Characteristics

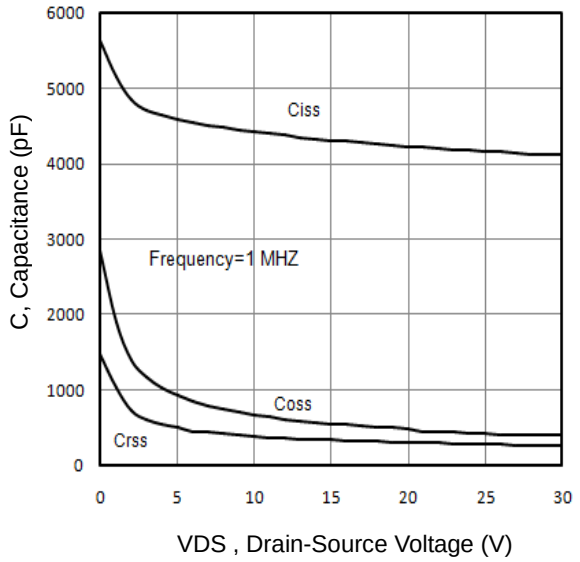


Fig7. Typical Capacitance Vs.Drain-Source Voltage

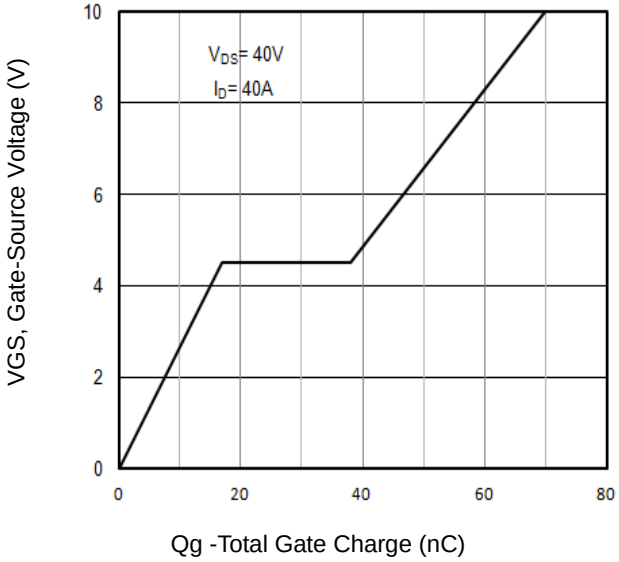


Fig8. Typical Gate Charge Vs.Gate-Source Voltage

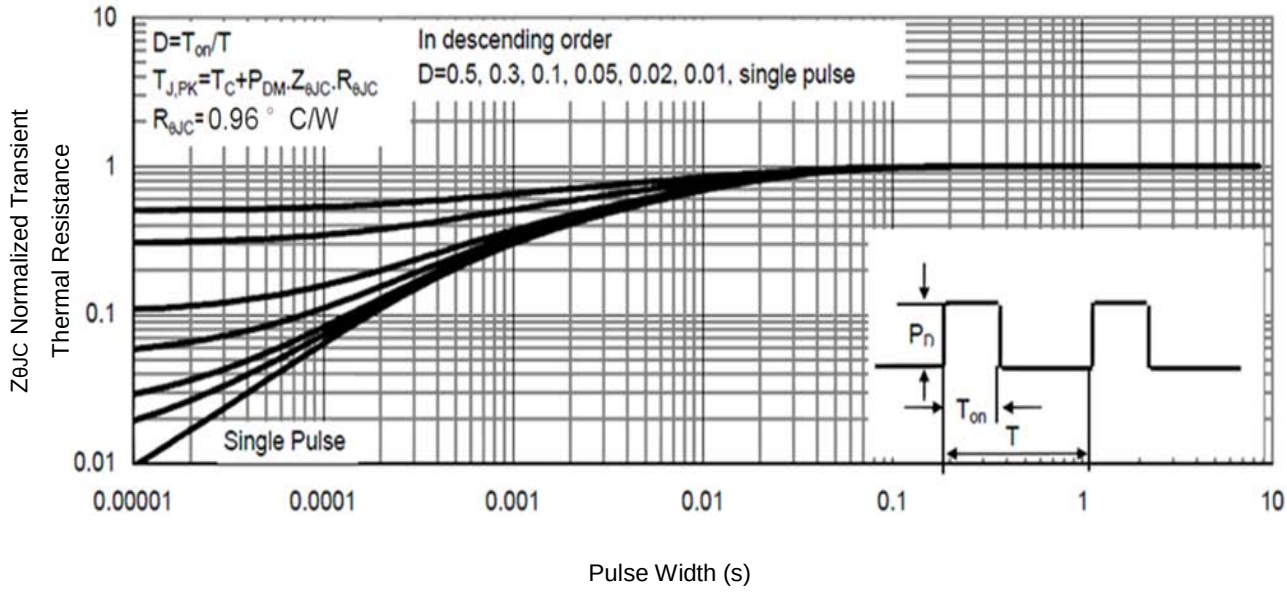


Fig9 . Normalized Maximum Transient Thermal Impedance

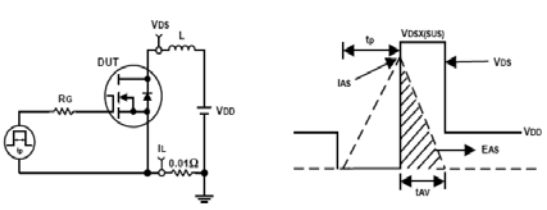


Fig10. Unclamped Inductive Test Circuit and waveforms

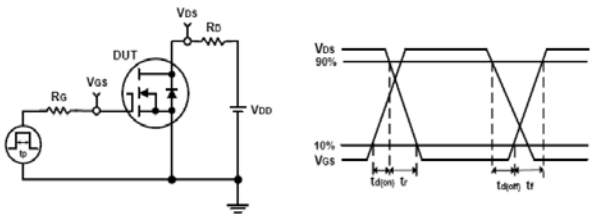
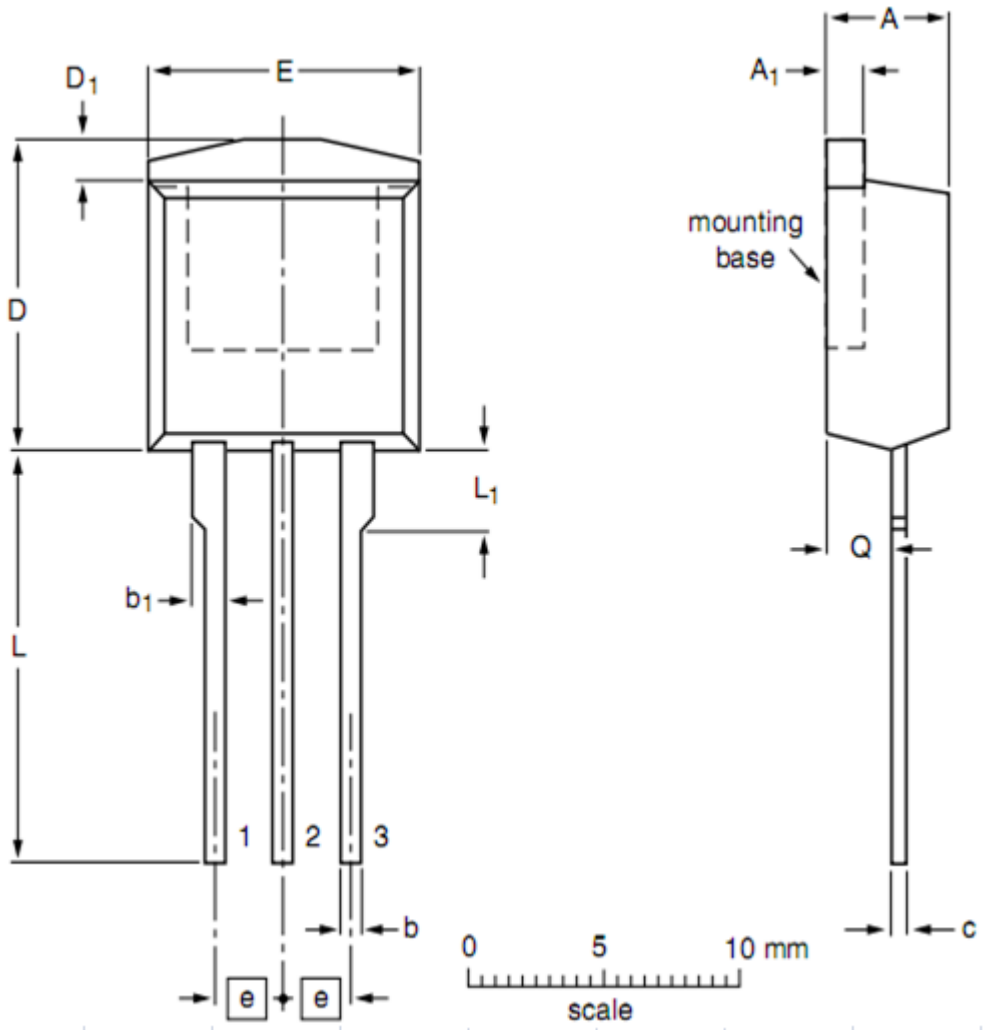


Fig11. Switching Time Test Circuit and waveforms

TO-262 Package Outline Data



Symbol	Dimensions (unit: mm)		
	Min	Typ	Max
A	4.10	4.47	4.83
A_1	1.15	1.28	1.40
b	0.70	0.85	0.99
b_1	1.20	1.30	1.40
c	0.46	0.58	0.70
D	9.80	10.40	11.00
D_1	1.00	1.20	1.40
E	9.70	10.00	10.29
e	--	2.54	--
L	12.75	13.73	14.70
L_1	--	3.10	3.30
Q	2.10	2.40	2.70

Note:

1. Refer to JEDEC TO-262.

Customer Service

Sales and Service:

sales@vgsemi.com

Vanguard Semiconductor CO., LTD

TEL: (86-755) -26902410

FAX: (86-755) -26907027

WEB: **www.vgsemi.com**