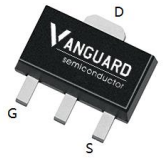
V_{DS}	80	V
$R_{DS(on),TYP}$@ V_{GS}=10 V	55	mΩ
$R_{DS(on),TYP}$@ V_{GS}=4.5 V	57	mΩ
I_D	15	A

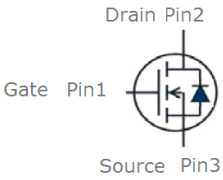
Features

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

Pb-Free RoHS HF Halogen-Free

SOT89





Part ID	Package Type	Marking	Tape and reel information
VSR080N08LS	SOT-89	080N08	3000pcs/Reel

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_C =25°C	15	A
I_D	Continuous drain current @VGS=10V	T_C =25°C	15	A
		T_C =100°C	9	A
I_{DM}	Pulse drain current tested ①	T_C =25°C	60	A
P_D	Maximum power dissipation	T_C =25°C	20	W
VGS	Gate-Source voltage		±16	V
T_{STG} T_J	Storage and operating temperature range		-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
$R_{\theta JC}$	Thermal Resistance-Junction to Case	6.3	°C/W
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	100	°C/W

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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}=±16V,V_{DS}=0V	--	--	±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	0.5	1.1	1.6	V
$R_{DS(ON)}$	Drain-Source On-State Resistance②	V_{GS}=10V, I_D=5A	--	55	68	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance②	V_{GS}=4.5V, I_D=4A	--	57	70	mΩ
Dynamic Electrical Characteristics @ T_j = 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=30V,V_{GS}=0V, f=1MHz	600	685	800	pF
C_{oss}	Output Capacitance			50	140	pF
C_{rss}	Reverse Transfer Capacitance			40	100	pF
R_g	Gate Resistance	f=1MHz	--	2	--	Ω
Q_g	Total Gate Charge	V_{DS}=40V,I_D=5A, V_{GS}=10V	--	17.3	--	nC
Q_{gs}	Gate-Source Charge		--	3.2	--	nC
Q_{gd}	Gate-Drain Charge		--	4.8	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=40V, I_D=5A, R_G=3Ω, V_{GS}=10V	--	7	--	nS
t_r	Turn-on Rise Time		--	2.9	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	23	--	nS
t_f	Turn-Off Fall Time		--	2.8	--	nS
Source- Drain Diode Characteristics@ T_j = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage	I_{SD}=5A,V_{GS}=0V	--	0.8	1.2	V
t_{rr}	Reverse Recovery Time	T_j=25℃,I_{sd}=5A, V_{GS}=0V di/dt=500A/μs	--	23	--	nS
Q_{rr}	Reverse Recovery Charge			96		nC

NOTE:

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

②Pulse width ≤ 300μs; duty cycle≤ 2%.

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Typical Characteristics

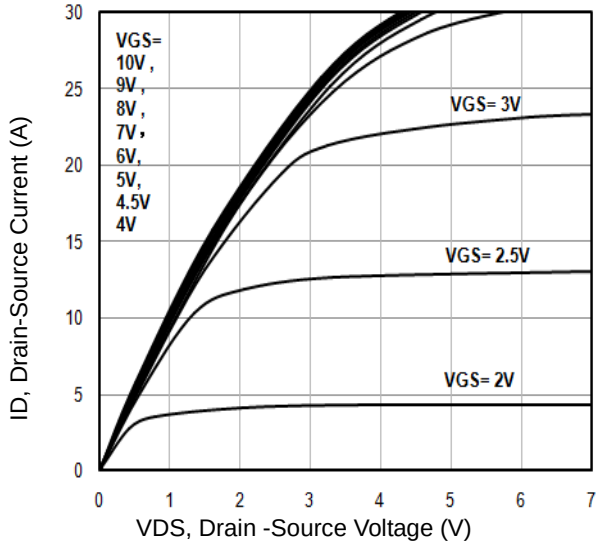

Fig1. Typical Output Characteristics

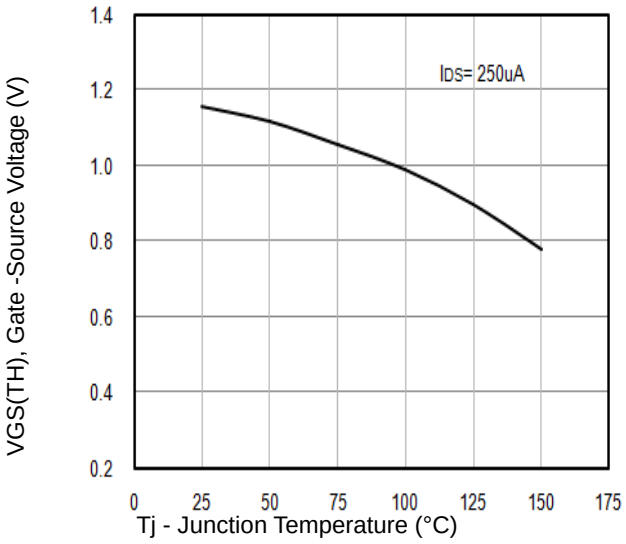

Fig2. $V_{GS(TH)}$ Gate -Source Voltage Vs.Tj

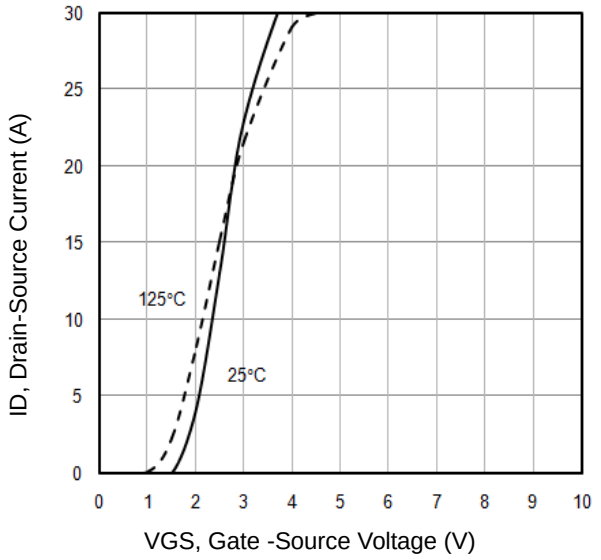

Fig3. Typical Transfer Characteristics

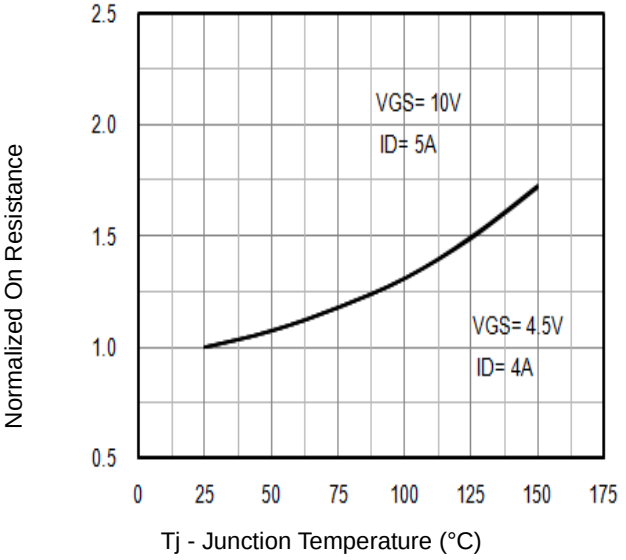

Fig4. Normalized On-Resistance Vs. Tj

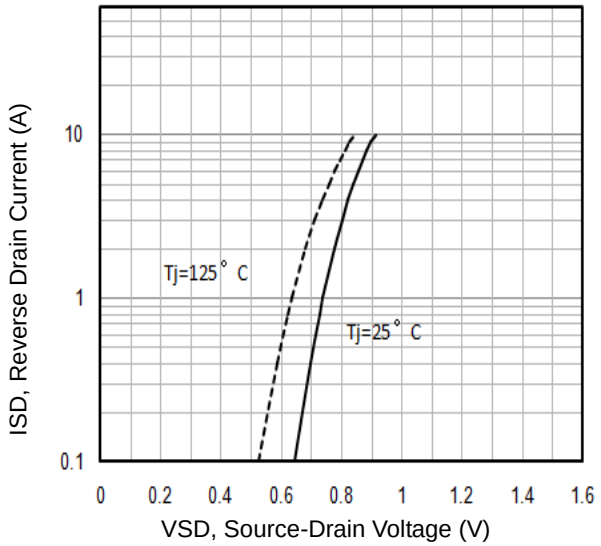

Fig5. Typical Source-Drain Diode Forward Voltage

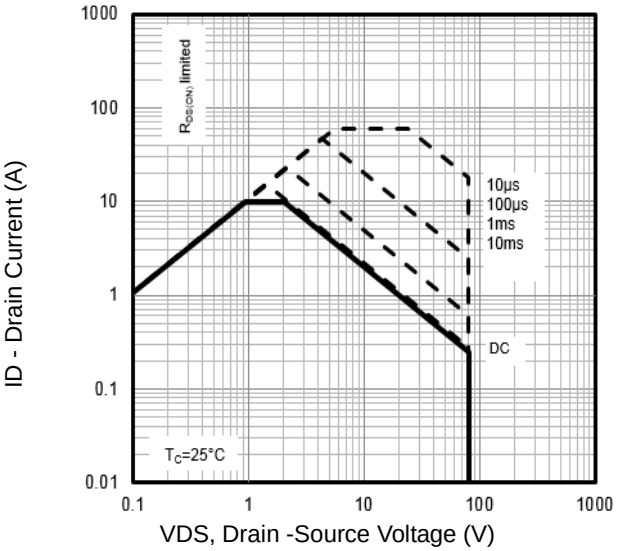

Fig6. Maximum Safe Operating Area

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Typical Characteristics

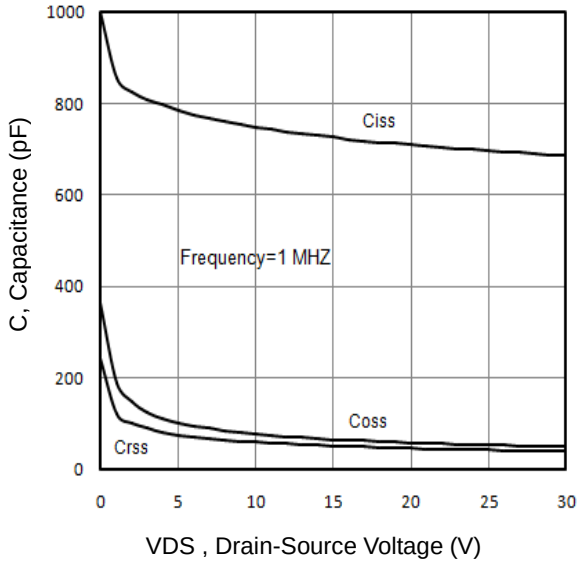

Fig7. Typical Capacitance Vs.Drain-Source Voltage

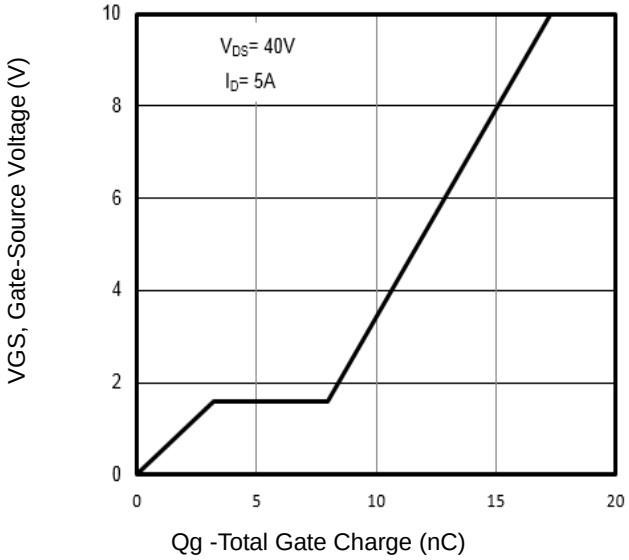

Fig8. Typical Gate Charge Vs.Gate-Source Voltage

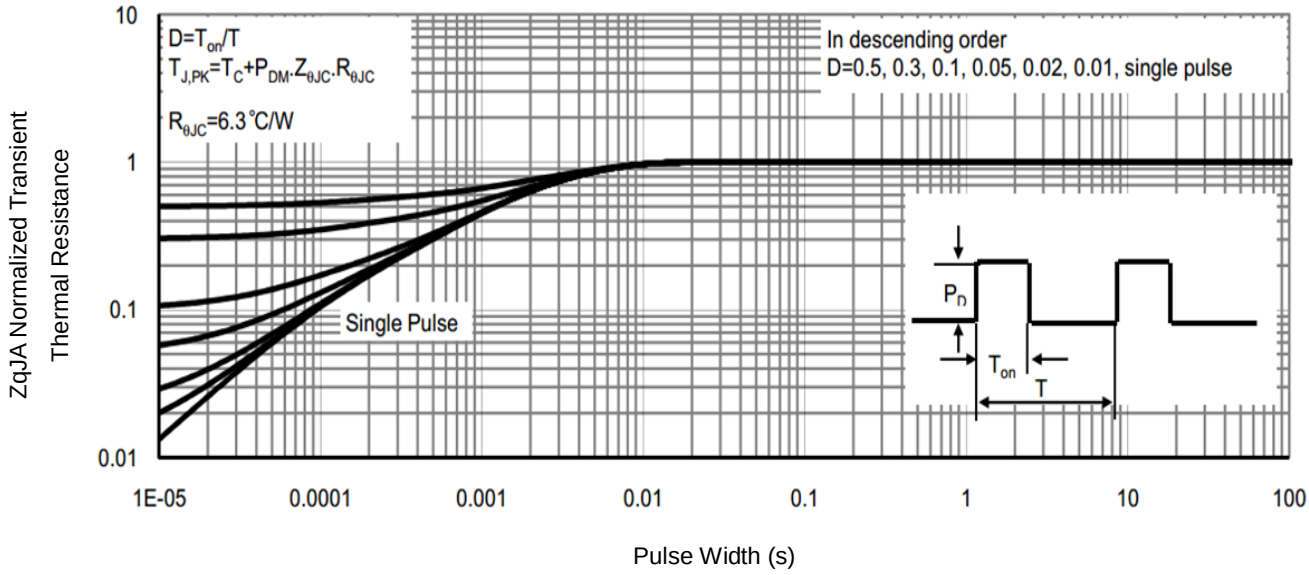

Fig9. Normalized Maximum Transient Thermal Impedance

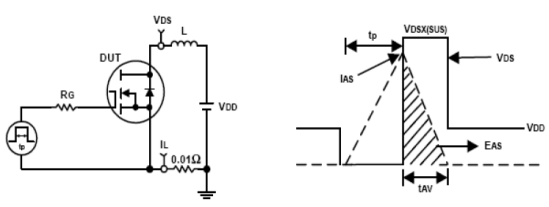

Fig10. Unclamped Inductive Test Circuit and waveforms

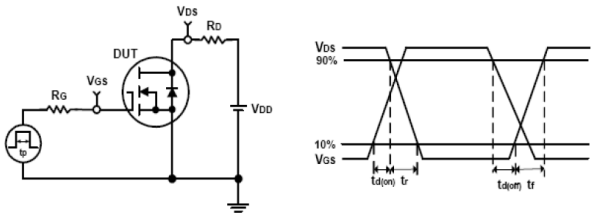

Fig11. Switching Time Test Circuit and waveforms

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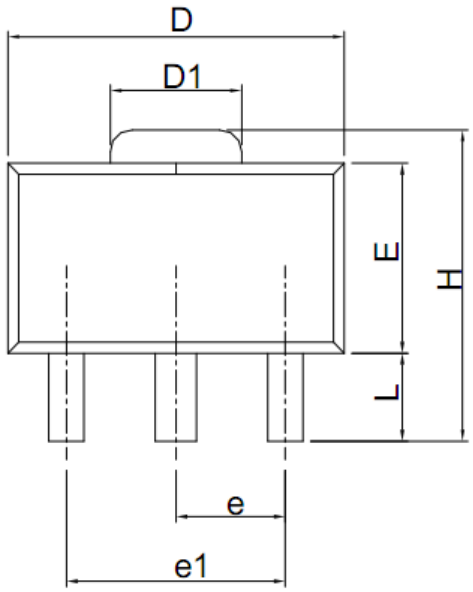
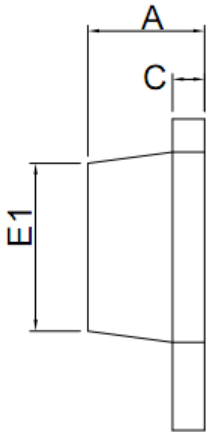
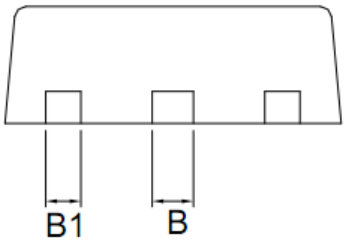
SOT89 Package Outline Data







Symbol	Dimensions (unit: mm)		
	Min	Typ	Max
A	1.40	1.50	1.60
B	0.44	0.51	0.56
B1	0.36	0.42	0.48
C	0.35	0.40	0.44
D	4.40	4.50	4.60
D1	1.62	1.70	1.83
E	2.40	2.50	2.60
E1	2.13		2.29
e		1.50 BSC	
e1		3.00 BSC	
H	3.94	4.20	4.25
L	0.89	1.00	1.20

Notes:
1. Refer to JEDEC TO-243 variation AA

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