Features

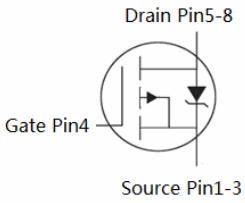
- P-Channel
- Very low on-resistance RDS(on) @ V_{GS}=-4.5 V
- Fast Switching
- Enhancement mode
- Repetitive Avalanche Allowed up to Tjmax
- Pb-free lead plating; RoHS compliant

V_{DS}	-30	V
$R_{DS(on),TYP}$@ V_{GS}=-10 V	8.0	mΩ
$R_{DS(on),TYP}$@ V_{GS}=-4.5V	11.0	mΩ
I_D	-15	A

SOP8

Pb-Free RoHS HF Halogen-Free

Part ID	Package Type	Marking	Tape and reel information
VSO008P03MS	SOP8	008P03M	3000pcs/reel



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

Symbol	Parameter		Rating	Unit
Common Ratings (Tc=25°C Unless Otherwise Noted)				
V_{GS}	Gate-Source Voltage		±20	V
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		-30	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range①		-55 to 175	°C
I_S	Diode Continuous Forward Current	T_C=25°C	-15	A
Mounted on Large Heat Sink				
I_D	Continuous Drain current @V_{GS}=-10V	T_C=25°C	-15	A
		T_C=100°C	-10	A
I_{DM}	Pulse Drain Current Tested ②	T_C=25°C	-60	A
P_D	Maximum Power Dissipation	T_C=25°C	2.5	W
$R_{\theta JC}$	Thermal Resistance-Junction to Case		18	°C/W
$R_{\theta JA}$	Thermal Resistance Junction-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(Tc=25℃)	V_{DS}=-24V,V_{GS}=0V	--	--	-1	μA
	Zero Gate Voltage Drain Current(Tc=125℃)	V_{DS}=-24V,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	-1.5	-2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance ②	V_{GS}=-10V, I_D=-10A	--	8.0	9.5	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance ②	V_{GS}=-4.5V, I_D=-5A	--	11.0	13.0	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance ②	V_{GS}=-4.2V, I_D=-2A	--	12.0	15.0	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=-10V,V_{GS}=0V, f=1MHz	--	3130	--	pF
C_{oss}	Output Capacitance		--	520	--	pF
C_{rss}	Reverse Transfer Capacitance		--	415	--	pF
Q_g	Total Gate Charge	V_{DS}=-10V,I_D=-10A, V_{GS}=-10V	--	49	--	nC
Q_{gs}	Gate-Source Charge		--	12	--	nC
Q_{gd}	Gate-Drain Charge		--	9	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=-15V, I_D=-1A, R_G=6.8Ω, V_{GS}=-10V	--	15	--	nS
t_r	Turn-on Rise Time		--	10	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	41	--	nS
t_f	Turn-Off Fall Time		--	21	--	nS
Source- Drain Diode Characteristics@ T_J = 25°C (unless otherwise stated)						
I_{SD}	Source-drain current(Body Diode)	T_c=25℃	--	--	-35	A
V_{SD}	Forward on voltage	I_{SD}=-10A,V_{GS}=0V	--	-0.81	-1.3	V
t_{rr}	Reverse Recovery Time	T_j=25℃,I_{sd}=-10A, V_{GS}=0V di/dt=-100A/μs	--	22	--	nS
Q_{rr}	Reverse Recovery Charge			47		nC

NOTE:

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

②Pulse width ≤ 300μs; duty cycle≤ 2%.

Typical Characteristics

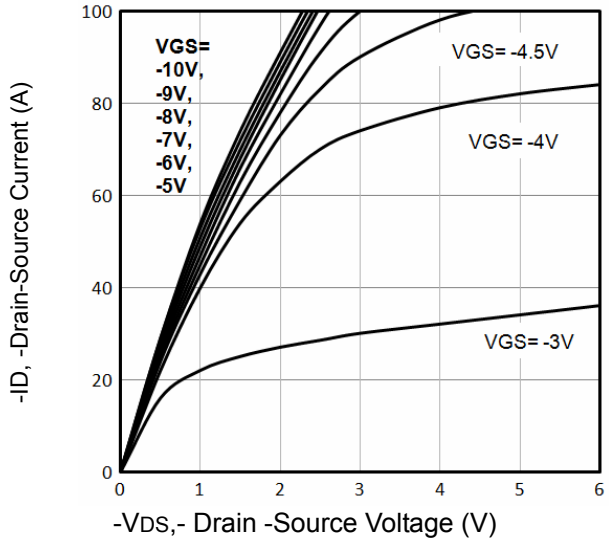


Fig1. Typical Output Characteristics

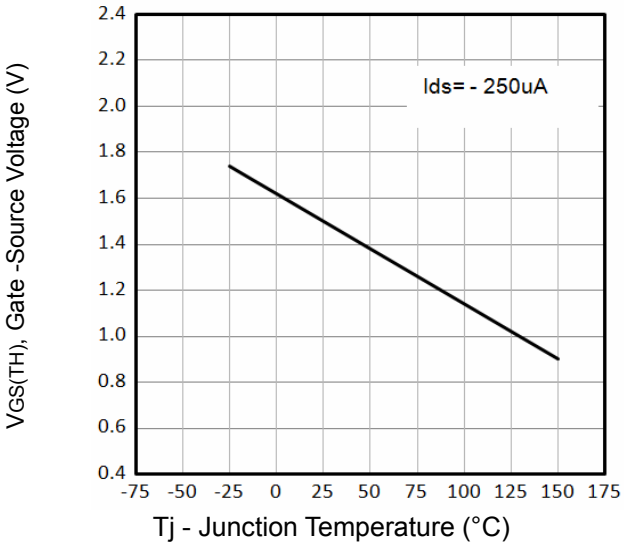


Fig2. Threshold Voltage Vs. Temperature

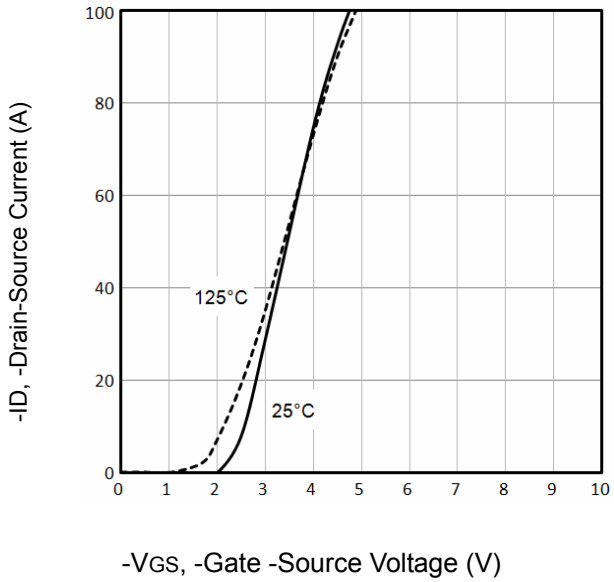


Fig3. Typical Transfer Characteristics

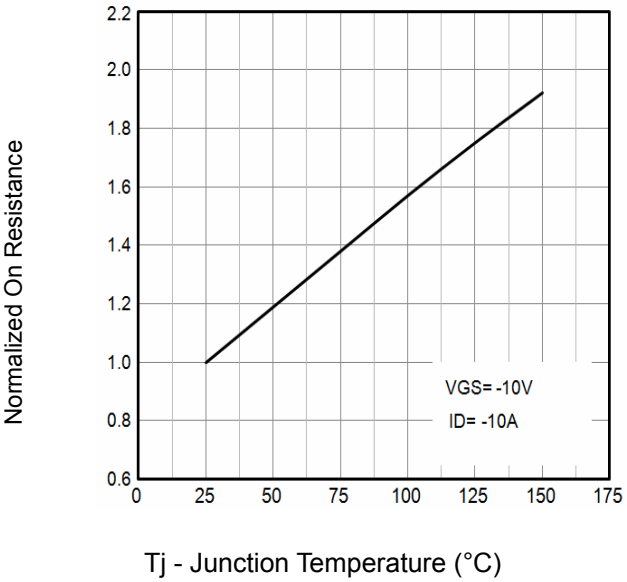


Fig4. Normalized On-Resistance Vs. Temperature

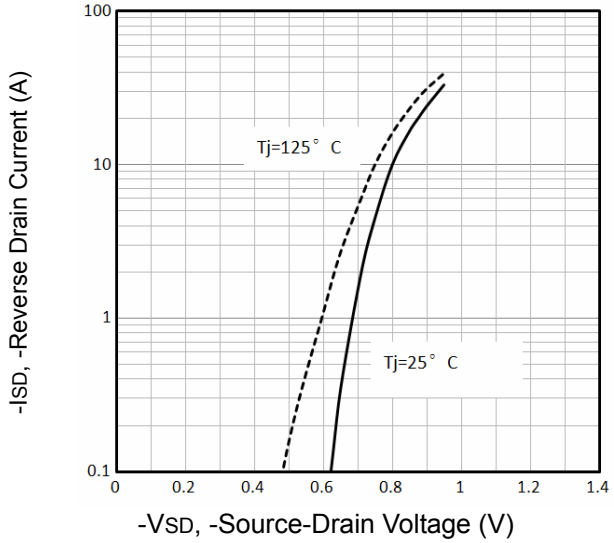


Fig5. Typical Source-Drain Diode Forward Voltage

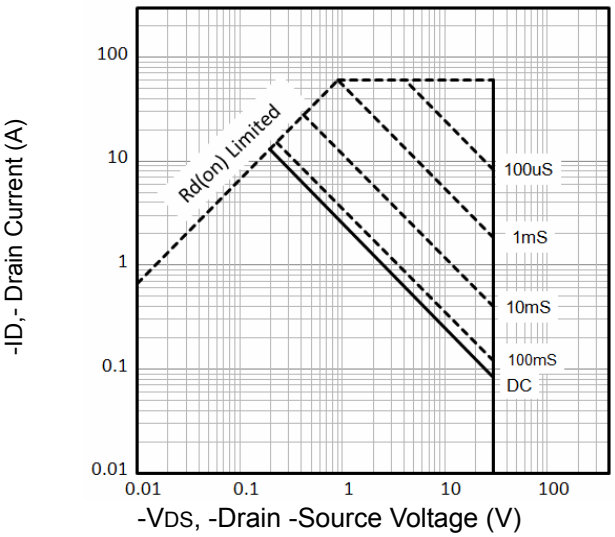


Fig6. Maximum Safe Operating Area

Typical Characteristics

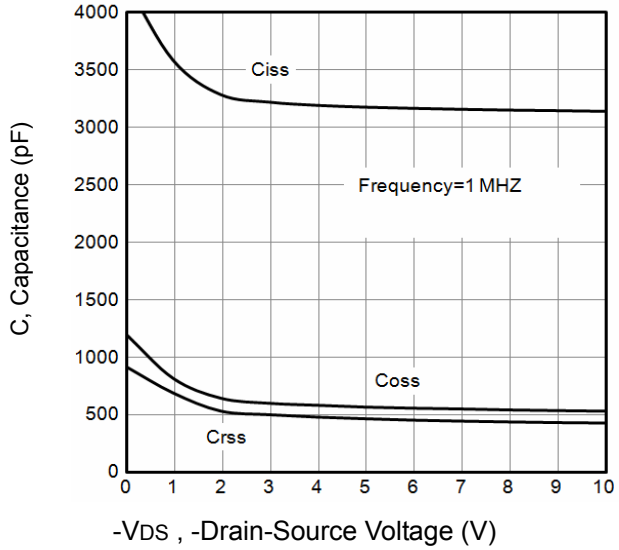


Fig7. Typical Capacitance Vs.Drain-Source Voltage

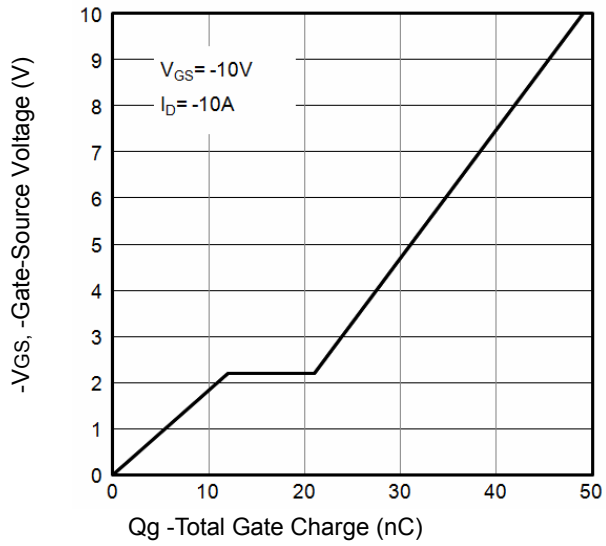


Fig8. Typical Gate Charge Vs.Gate-Source Voltage

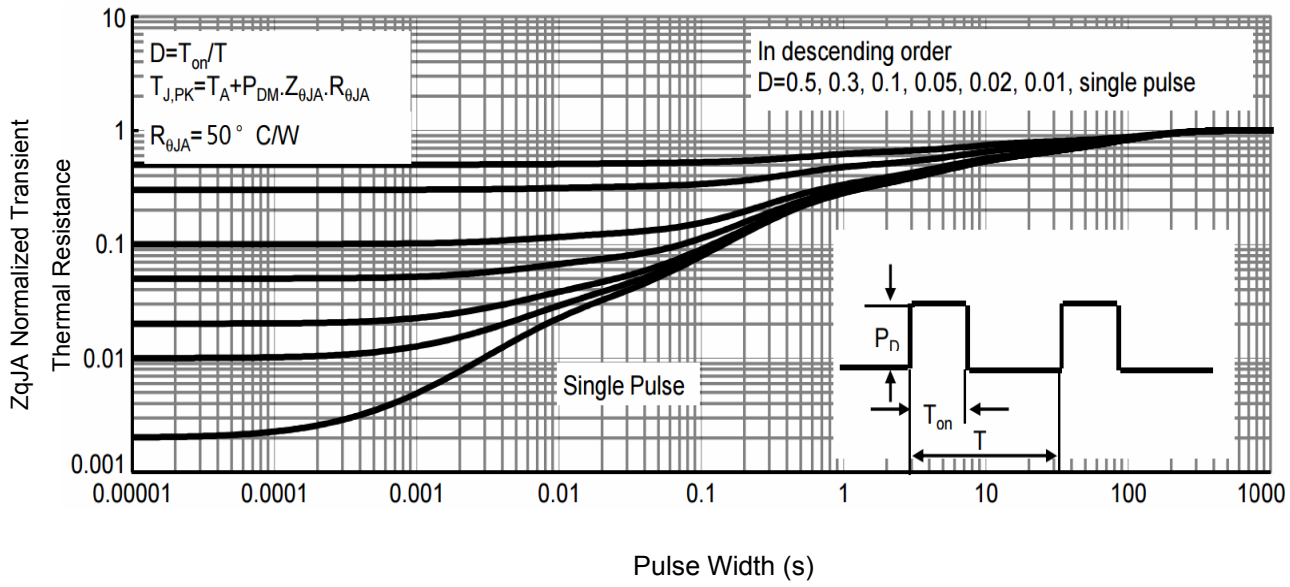


Figure 9: Normalized Maximum Transient Thermal

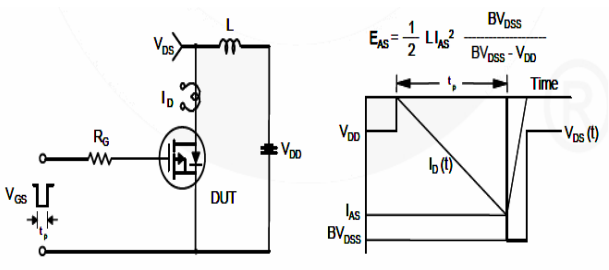


Fig10. Unclamped Inductive Test Circuit and Waveforms

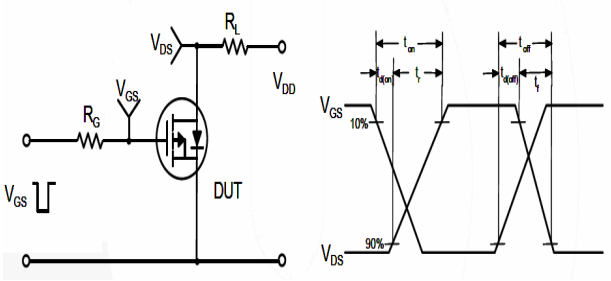
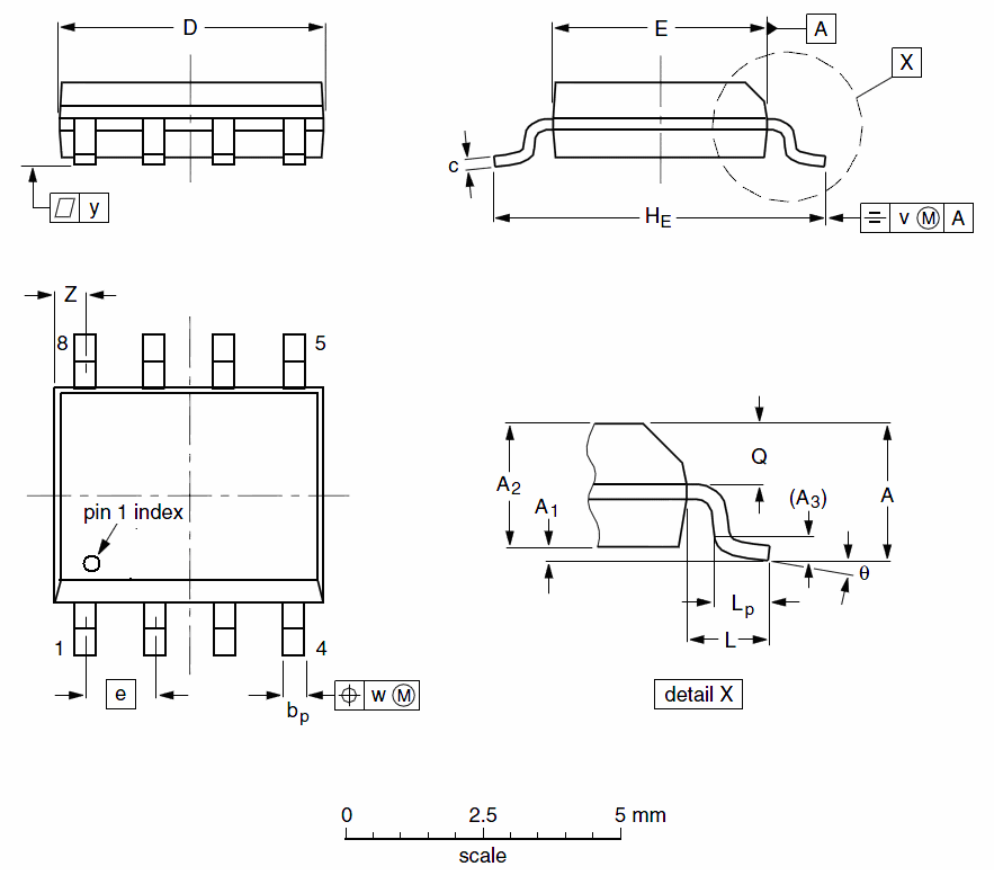


Fig11. Switching Time Test Circuit and waveforms

SOP8 Package Outline Data



DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	--	1.75	--	**A_1**	0.10	0.18	0.25
A_2	1.25	1.35	1.45	**A_3**	--	0.25	--
b_p	0.36	0.42	0.49	**c**	0.19	0.22	0.25
D	4.80	4.92	5.00	**E**	3.80	3.90	4.00
e	--	1.27	--	**H_E**	5.80	5.98	6.20
L	--	1.05	--	**L_p**	0.40	0.68	1.00
Q	0.60	0.65	0.70	**v**	--	0.25	--
w	--	0.25	--	**y**	--	0.10	--
Z	0.30	0.50	0.70	**θ**	0°		8°

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