Features

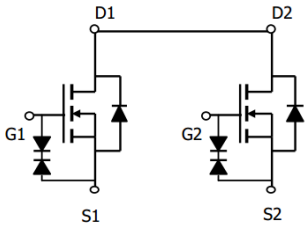
- Dual N-Channel，2.5V Logic Level Control
- Low on-resistance $R_{DS(on)}$ @ V_{GS}=2.5 V
- Fast Switching
- ESD Protection HBM 2.5KV
- Pb-free lead plating; RoHS compliant

V_{DS}	20	V
$R_{DS(on),TYP}$@ V_{GS}=4.5 V	19	mΩ
$R_{DS(on),TYP}$@ V_{GS}=2.5 V	26	mΩ
I_D	7	A

TSSOP8

Pb-Free RoHS HF Halogen-Free

Part ID	Package Type	Marking	Tape and reel information
VS8810DTS	TSSOP8	8810D	3000PCS/Reel



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

Symbol	Parameter		Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage		20	V
I_S	Diode continuous forward current	T_A=25°C	1.3	A
I_D	Continuous drain current @VGS=4.5V	T_A=25°C	7	A
		T_A=100°C	4.4	A
I_{DM}	Pulse drain current tested ①	T_A=25°C	28	A
P_D	Maximum power dissipation	T_A=25°C	1.5	W
VGS	Gate-Source voltage		±8	V
T_{STG} T_J	Storage and operating temperature range		-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
$R_{\theta JL}$	Thermal Resistance-Junction to Lead	70	°C/W
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	83.5	°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	20	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=20V,V_{GS}=0V	--	--	1	uA
	Zero Gate Voltage Drain Current(T_j=125℃)	V_{DS}=20V,V_{GS}=0V	--	--	100	uA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±8V,V_{DS}=0V	--	--	±10	uA
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	0.4	0.8	1.2	V
$R_{DS(ON)}$	Drain-Source On-State Resistance②	V_{GS}=4.5V, I_D=6A	--	19	25	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance②	V_{GS}=2.5V, I_D=5A	--	26	34	mΩ
Dynamic Electrical Characteristics @ T_j = 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=10V,V_{GS}=0V, f=1MHz	300	415	500	pF
C_{oss}	Output Capacitance		40	90	140	pF
C_{rss}	Reverse Transfer Capacitance		30	80	130	pF
Q_g	Total Gate Charge	V_{DS}=10V,I_D=6A, V_{GS}=4.5V	--	8.2	--	nC
Q_{gs}	Gate-Source Charge		--	2.4	--	nC
Q_{gd}	Gate-Drain Charge		--	3.3	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=0V, I_D=6A, R_G=3.0Ω, V_{GS}=4.5V	--	6.5	--	nS
t_r	Turn-on Rise Time		--	8	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	35	--	nS
t_f	Turn-Off Fall Time		--	9.1	--	nS
Source- Drain Diode Characteristics@ T_j = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage	I_{SD}=1.6A,V_{GS}=0V	--	0.8	1.2	V
t_{rr}	Reverse Recovery Time	T_j=25℃,I_{sd}=6A, V_{GS}=0V di/dt=100A/μs	--	15	--	nS
Q_{rr}	Reverse Recovery Charge			5.3		nC

NOTE:

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

② Pulse width ≤ 300μs; duty cycle≤ 2%

Typical Characteristics

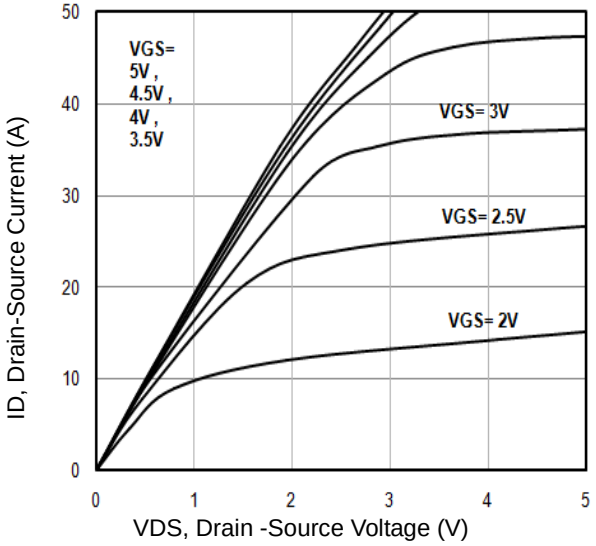


Fig1. Typical Output Characteristics

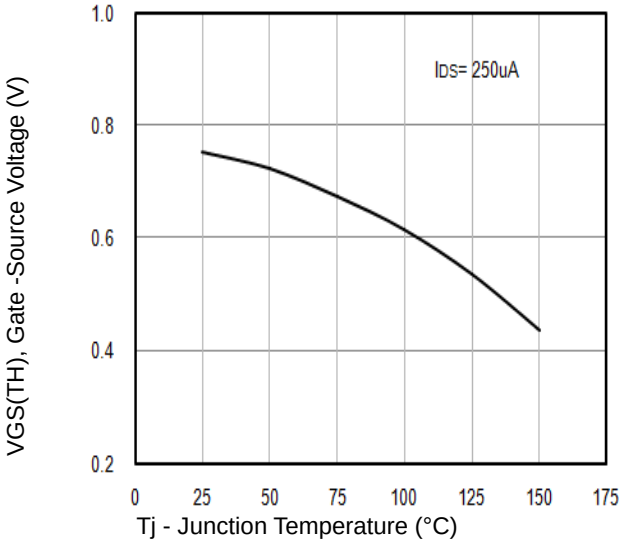


Fig2. $V_{GS(TH)}$ Gate -Source Voltage Vs.Tj

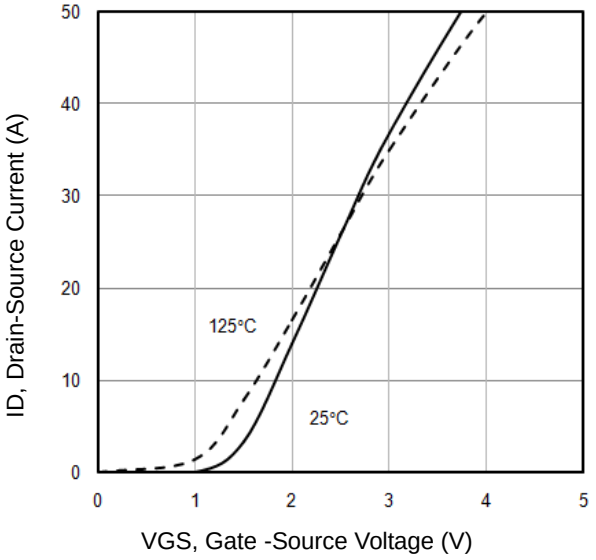


Fig3. Typical Transfer Characteristics

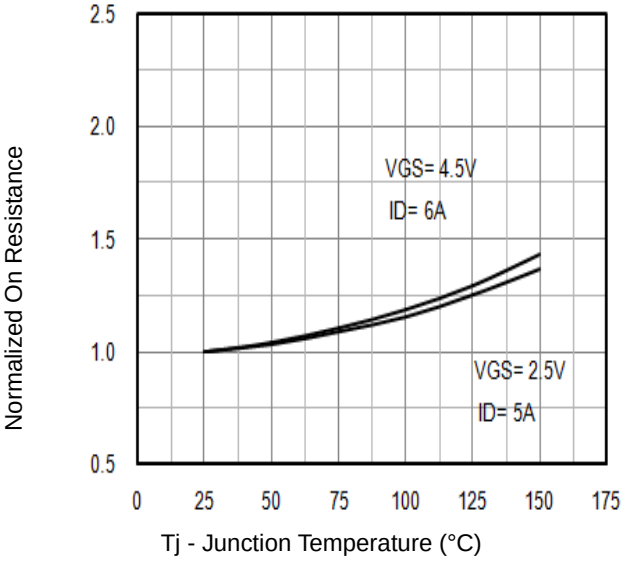


Fig4. Normalized On-Resistance Vs. Tj

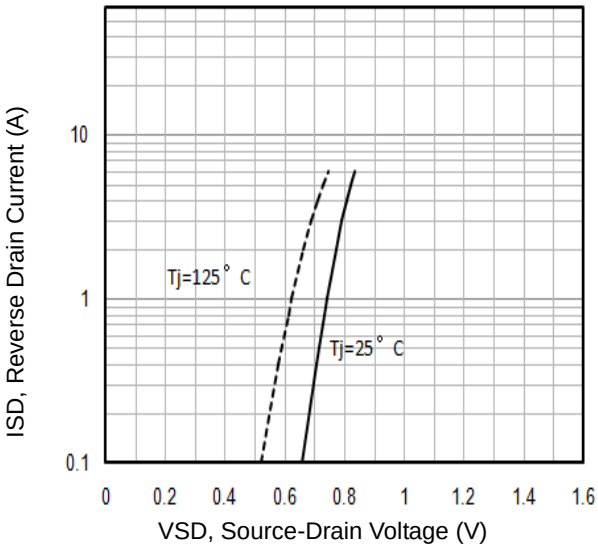


Fig5. Typical Source-Drain Diode Forward Voltage

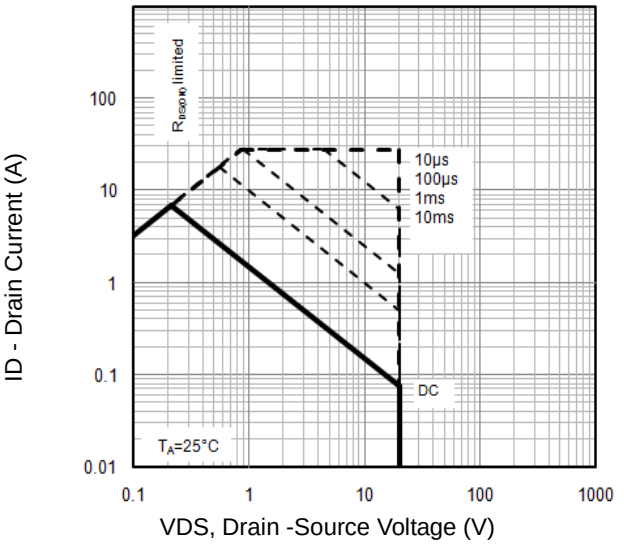


Fig6. Maximum Safe Operating Area

Typical Characteristics

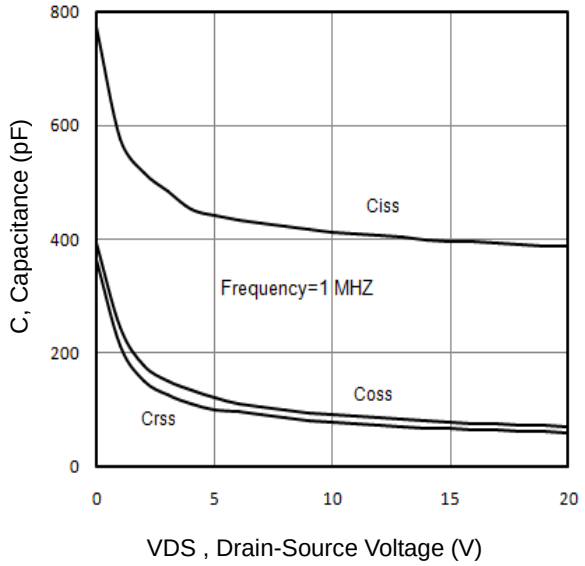


Fig7. Typical Capacitance Vs.Drain-Source Voltage

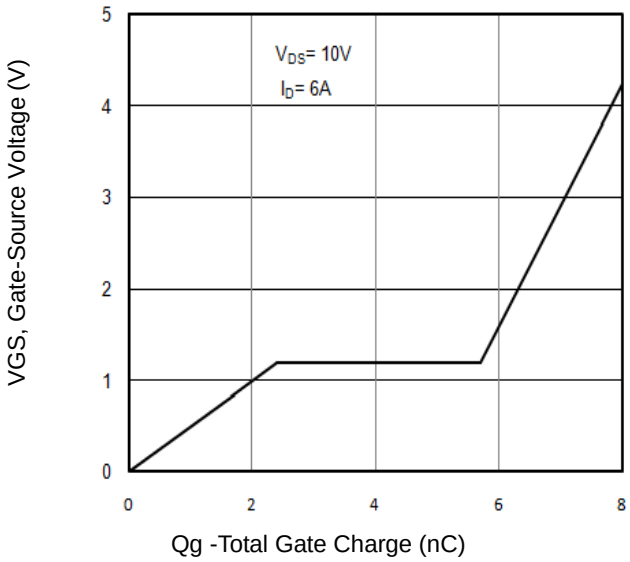


Fig8. Typical Gate Charge Vs.Gate-Source Voltage

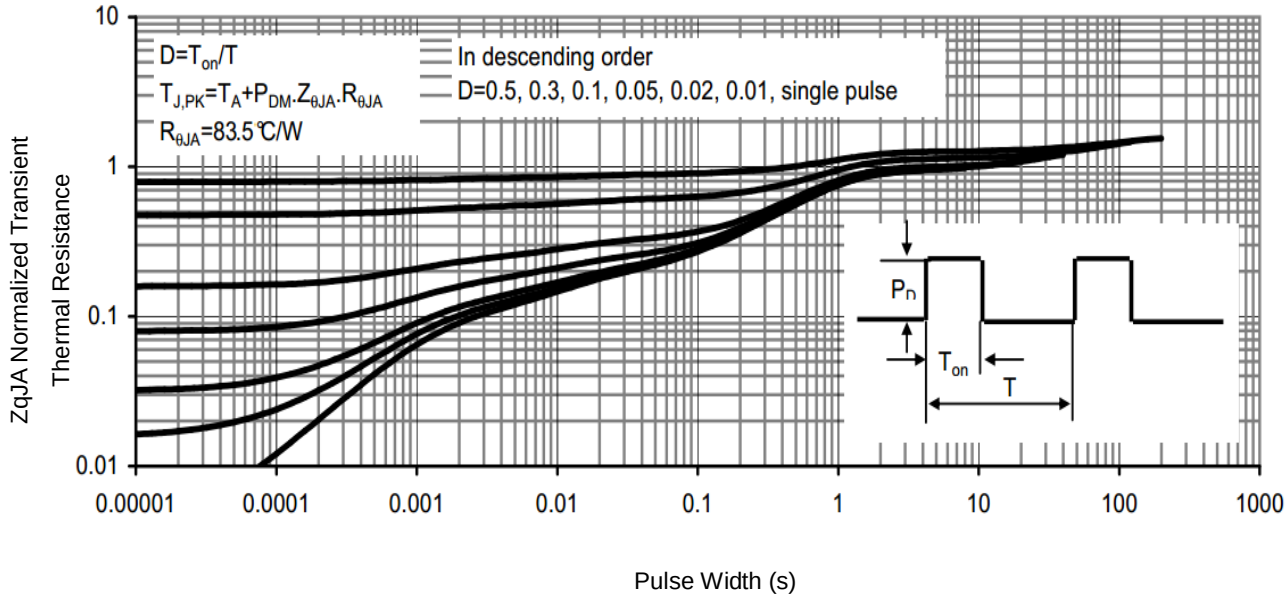


Fig9. Normalized Maximum Transient Thermal Impedance

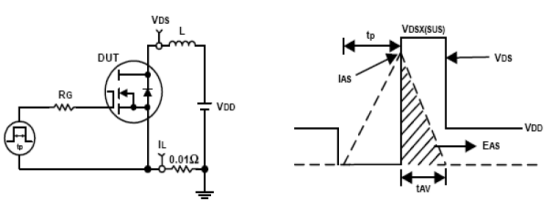


Fig10. Unclamped Inductive Test Circuit and waveforms

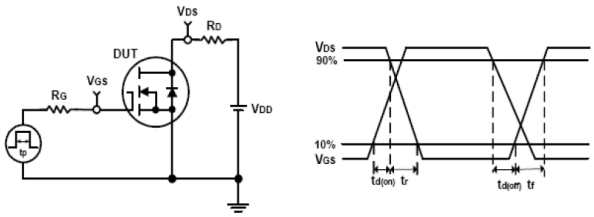
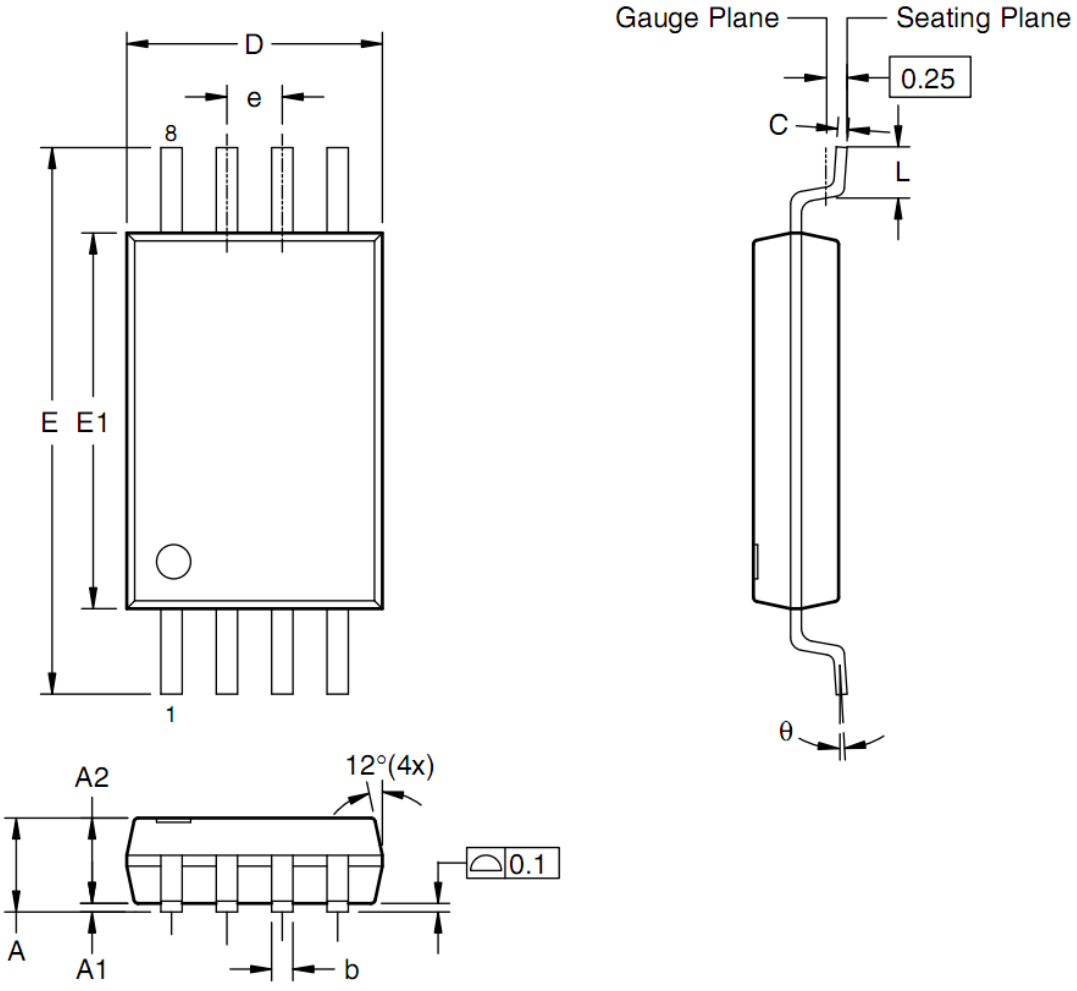


Fig11. Switching Time Test Circuit and waveforms

TSSOP8 Package Outline Data



Symbol	Dimensions (unit: mm)		
	Min	Typ	Max
A	--	--	1.20
A1	0.05	--	0.15
A2	0.80	1.00	1.05
b	0.19	--	0.30
C	0.09	--	0.20
D	2.90	3.00	3.10
E	6.40 BSC		
E1	4.30	4.40	4.50
e	0.65 BSC		
L	0.45	0.60	0.75
θ	0°	--	8°

Notes:

1. Refer to JEDEC MO-153 (AA)
2. Dimension "D" does NOT include mold flash, protrusions or gate burrs. Mold flash, protrusions or gate burrs shall not exceed 0.15mm per side.
3. Dimension "E1" does NOT include interlead flash or protrusion. Interlead flash or protrusion shall not exceed 0.25mm per side.

Customer Service

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