

Features

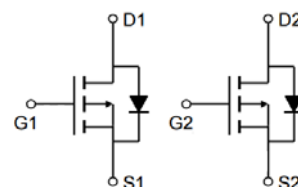
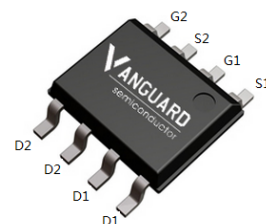
- Dual P-Channel, -5V Logic Level Control
- Enhancement mode
- Very low on-resistance $R_{DS(on)}$ @ $V_{GS}=-4.5\text{ V}$
- Fast Switching
- High Effective
- Pb-free lead plating; RoHS compliant; Hg-Free

V_{DS}	-60	V
$R_{DS(on),TYP}@ V_{GS}=-10\text{ V}$	70	mΩ
$R_{DS(on),TYP}@ V_{GS}=-4.5\text{ V}$	85	mΩ
I_D	-4.6	A



Halogen-Free

SOP8



Part ID	Package Type	Marking	Tape and reel information
VSO100P06MD	SOP8	100P06MD	3000pcs/reel

Maximum ratings, at $T_J=25\text{ }^{\circ}\text{C}$, unless otherwise specified

Symbol	Parameter		Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage		-60	V
I_S	Diode continuous forward current	$T_A=25\text{ }^{\circ}\text{C}$	-2.3	A
I_D	Continuous drain current @ $V_{GS}=10\text{ V}$	$T_A=25\text{ }^{\circ}\text{C}$	-4.6	A
		$T_A=100\text{ }^{\circ}\text{C}$	-2.9	A
I_{DM}	Pulse drain current tested ②	$T_A=25\text{ }^{\circ}\text{C}$	-18.4	A
P_D	Power dissipation for Dual Operation	$T_A=25\text{ }^{\circ}\text{C}$	3	W
V_{GS}	Gate-Source voltage		±20	V
T_{STG}	Storage temperature range		-55 to 150	$^{\circ}\text{C}$
T_J	Maximum Junction Temperature①		150	$^{\circ}\text{C}$

Thermal Characteristics

Symbol	Parameter	Typical	Unit
$R_{\theta JC}$	Thermal Resistance-Junction to Case	24	$^{\circ}\text{C/W}$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	40	$^{\circ}\text{C/W}$

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	-60	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current(T _A =25°C)	V _{DS} =-60V,V _{GS} =0V	--	--	-1	μA
	Zero Gate Voltage Drain Current(T _A =125°C)	V _{DS} =-60V,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	-2.0	-3.0	V
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =-10V, I _D =-4A	--	70	90	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =-4.5V, I _D =-2A	--	85	100	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =-30V,V _{GS} =0V, f=1MHz	--	940	--	pF
C _{oss}	Output Capacitance		--	55	--	pF
C _{rss}	Reverse Transfer Capacitance		--	40	--	pF
Q _g	Total Gate Charge	V _{DS} =-30V,I _D =-4A, V _{GS} =-10V	--	17.5	--	nC
Q _{gs}	Gate-Source Charge		--	2.8	--	nC
Q _{gd}	Gate-Drain Charge		--	3.6	--	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} =-30V, I _D =-4A, R _G =6.8Ω, V _{GS} =-10V	--	9	--	nS
t _r	Turn-on Rise Time		--	4	--	nS
t _{d(off)}	Turn-Off Delay Time		--	33	--	nS
t _f	Turn-Off Fall Time		--	8	--	nS
Source- Drain Diode Characteristics@ T _J = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage	I _{SD} =-4A,V _{GS} =0V	--	-0.85	-1.3	V
t _{rr}	Reverse Recovery Time	T _J =25°C,I _{sd} =-4A, V _{GS} =0V	--	32	--	nS
Q _{rr}	Reverse Recovery Charge	di/dt=-100A/μs	--	39	--	nC

NOTE:

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

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

Typical Characteristics

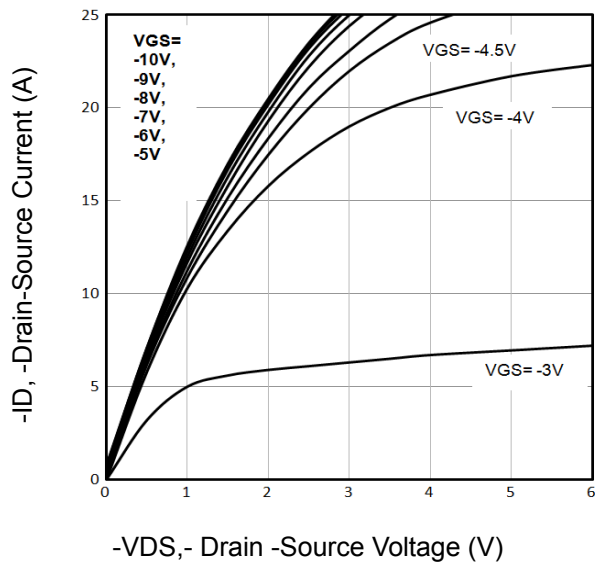


Fig1. Typical Output Characteristics

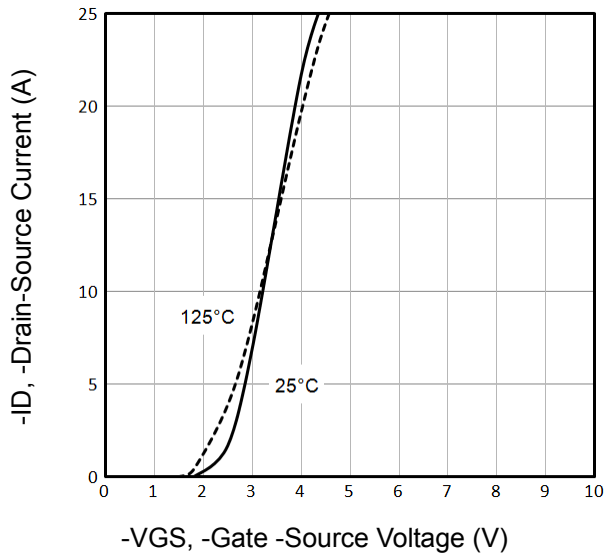


Fig3. Typical Transfer Characteristics

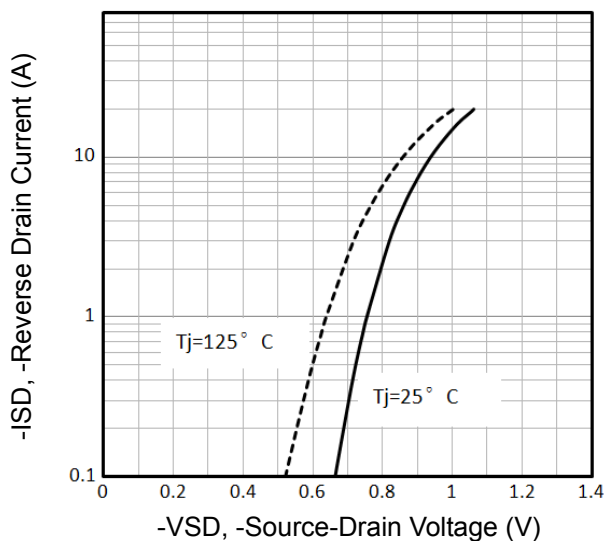


Fig5. Typical Source-Drain Diode Forward Voltage

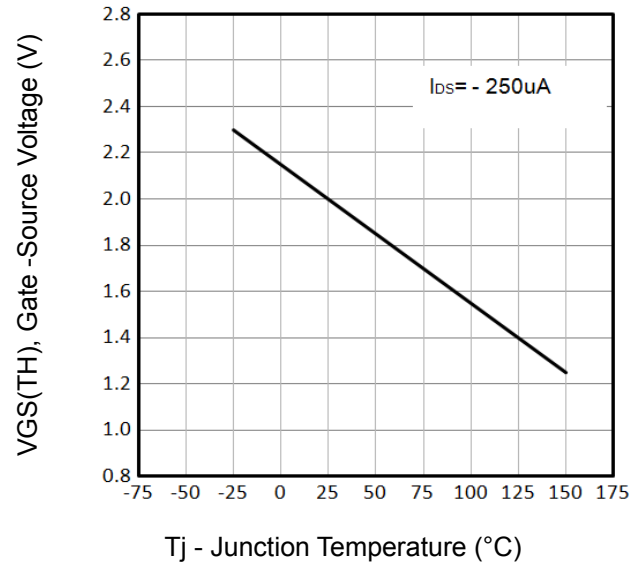


Fig2. $V_{GS(TH)}$ Gate-Source Voltage Vs. T_j

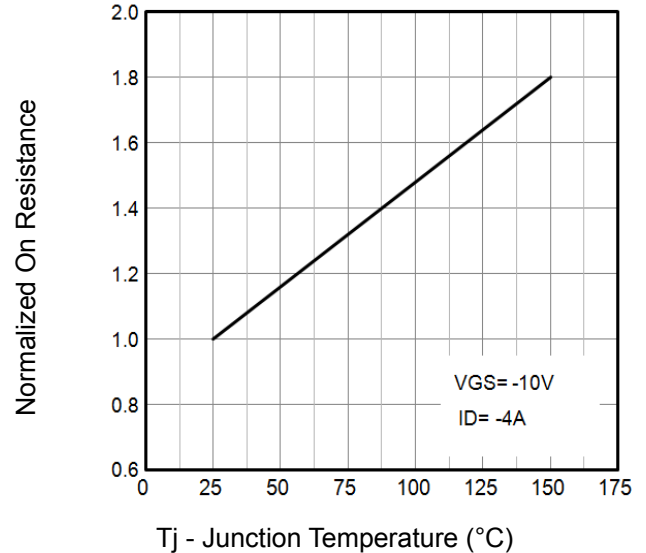


Fig4. Normalized On-Resistance Vs. T_j

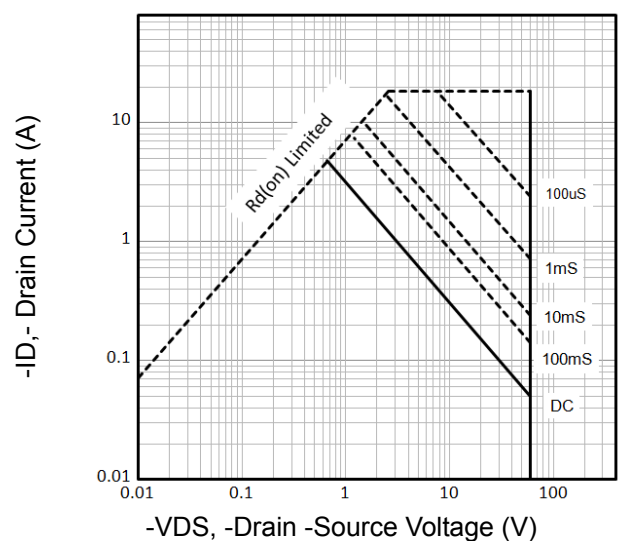
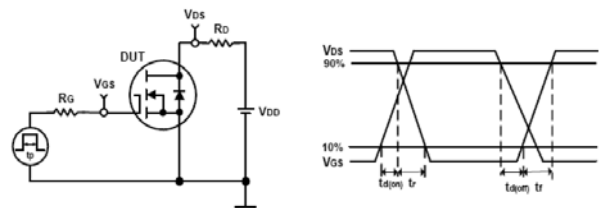
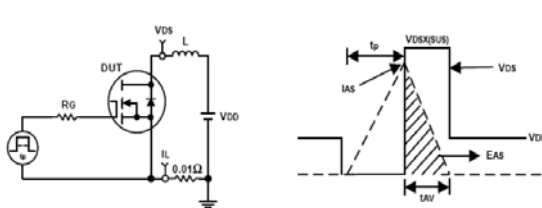
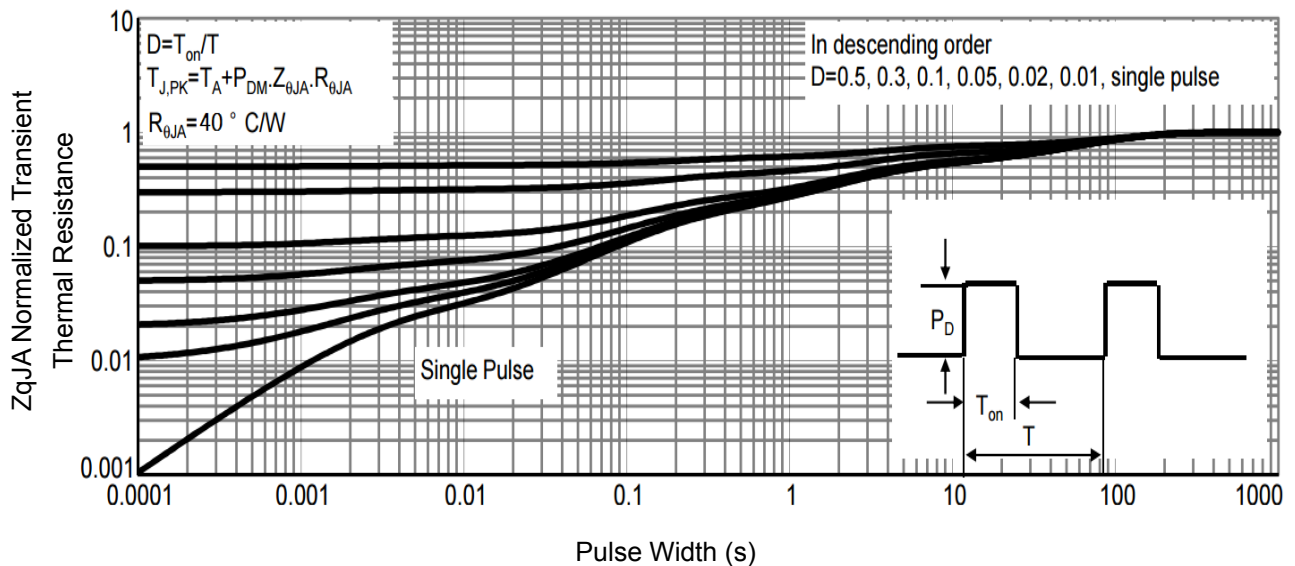
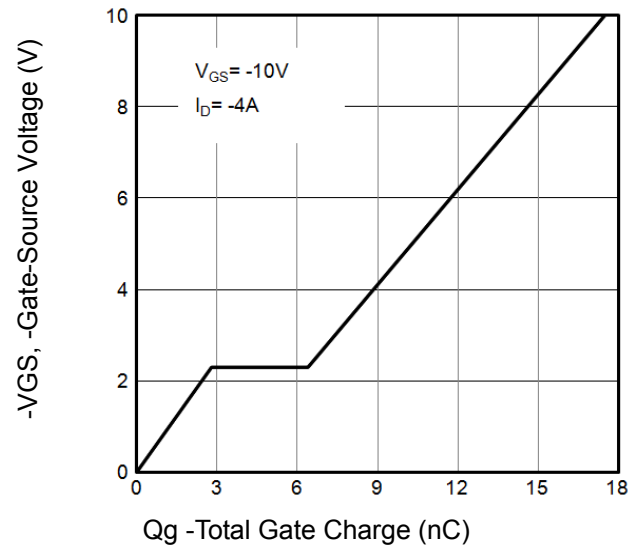
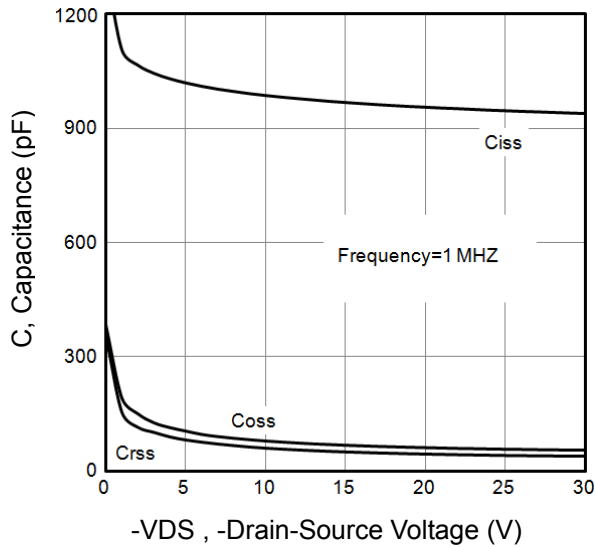
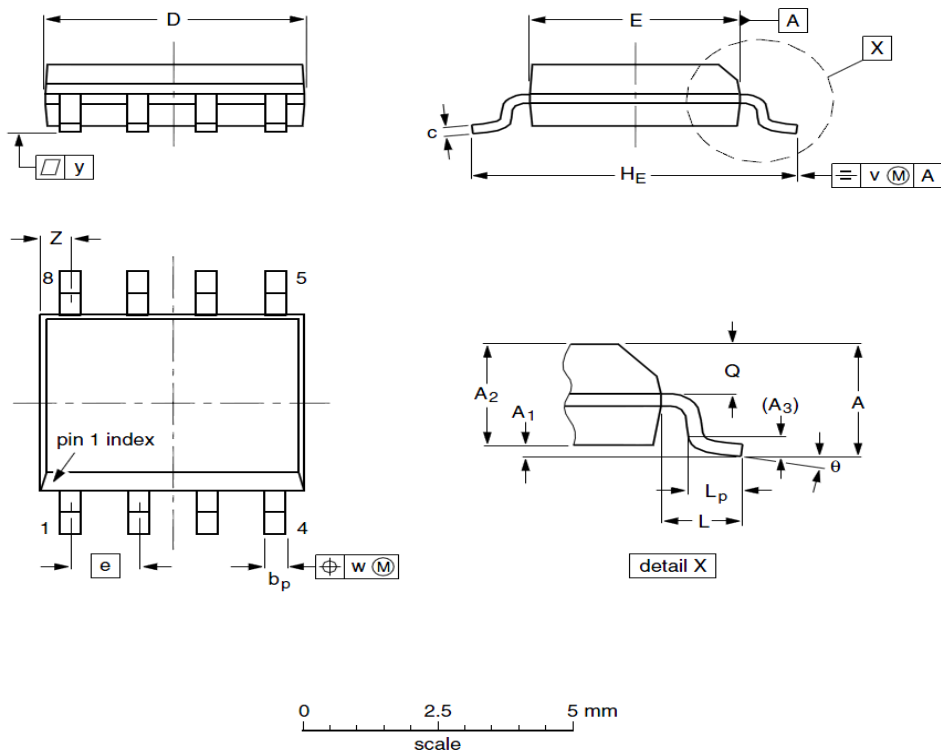


Fig6. Maximum Safe Operating Area

Typical Characteristics



SOP8 Package Outline



DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	--	1.75	--	A₁	0.10	0.18	0.25
A₂	1.25	1.35	1.45	A₃	--	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°

Customer Service

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