

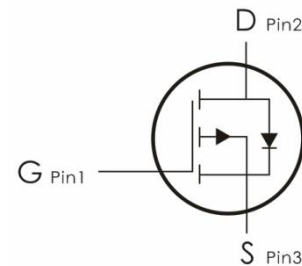
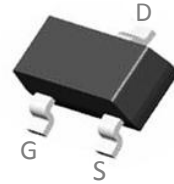
Description:

This P-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=-100V, I_D=-2A, R_{DS(on)}<300m\Omega @V_{GS}=-10V$ (Typ : $270m\Omega$)
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra $R_{DS(on)}$.
- 5) Excellent package for good heat dissipation.



Absolute Maximum Ratings: ($T_A=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-100	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current- $T_A=25^\circ C$	-2	A
	Continuous Drain Current- $T_A=100^\circ C$	-1.4	A
I_{DM}	Pulse Drain Current Tested ¹	-8	A
P_D	Power Dissipation- $T_A=25^\circ C$	2.5	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	50	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	6	$^\circ C/W$

Package Marking and Ordering Information:

Part NO.	Marking	Package
VH300PG	H300P	SOT-23-3

Electrical Characteristics: (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Sourctce Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	-100	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =-80V	---	---	-1	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 20V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	-1	---	-2.5	V
R _{DS(ON)}	Drain-Source On Resistance ¹	V _{GS} =-10V, I _D =-1.7A	---	270	300	m Ω
		V _{GS} =-4.5V, I _D =-1A	---	290	350	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =-25V, V _{GS} =0V, f=1MHz	---	239	---	pF
C _{oss}	Output Capacitance		---	32	---	
C _{rss}	Reverse Transfer Capacitance		---	21	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time ^{1,2}	V _{DS} =-50V, R _{GEN} =6 Ω , V _{GS} =-10V, I _D =-1.7A	---	5.7	---	ns
t _r	Rise Time ^{1,2}		---	17	---	ns
t _{d(off)}	Turn-Off Delay Time ^{1,2}		---	20.1	---	ns
t _f	Fall Time ^{1,2}		---	17.3	---	ns
Q _g	Total Gate Charge ^{1,2}	V _{GS} =-10V, V _{DS} =-80V, I _D =-1.7A	---	8.5	---	nC
7Q _{gs}	Gate-Source Charge ^{1,2}		---	1	---	nC
Q _{gd}	Gate-Drain “Miller” Charge ^{1,2}		---	3.1	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Forward Voltage ¹	V _{GS} =0V, I _S =-1A	---	-0.83	-1.2	V
I _D	Continuous Drain Current ¹	V _G =V _D =0V	---	---	-2	A
I _{DM}	Pulse Drain Current Tested ³	V _G =V _D =0V	---	---	-8	A
T _{rr}	Reverse Recovery Time	V _G S=0V, I _S = -1A,	----	19.2	---	nS
Q _{rr}	Reverse Recovery Time	di/dt=100A/μs	---	12	---	nC

Notes:

- 1.Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%
- 2.Independent of operating temperature
- 3.Pulse width limited by maximum junction temperature.

Typical Characteristics

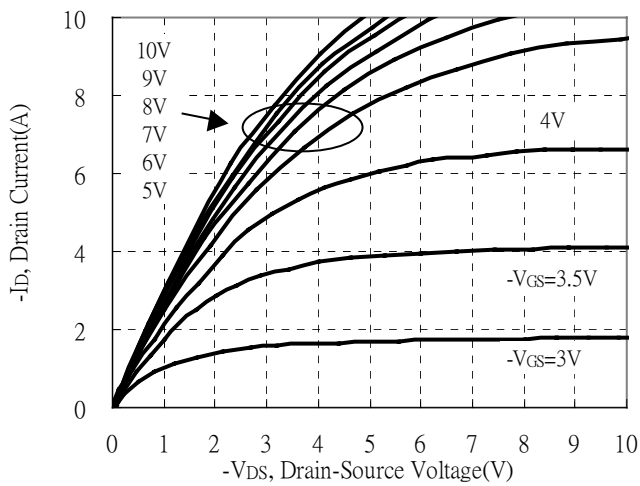


Fig1. Typical Output Characteristics

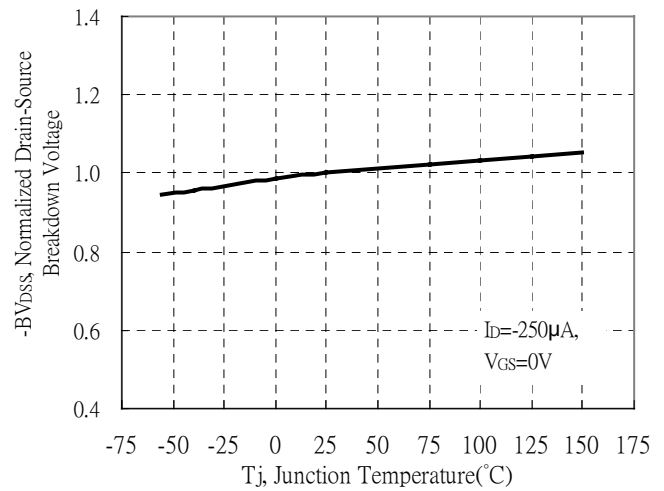


Fig2. Breakdown Voltage vs Ambient Temperature

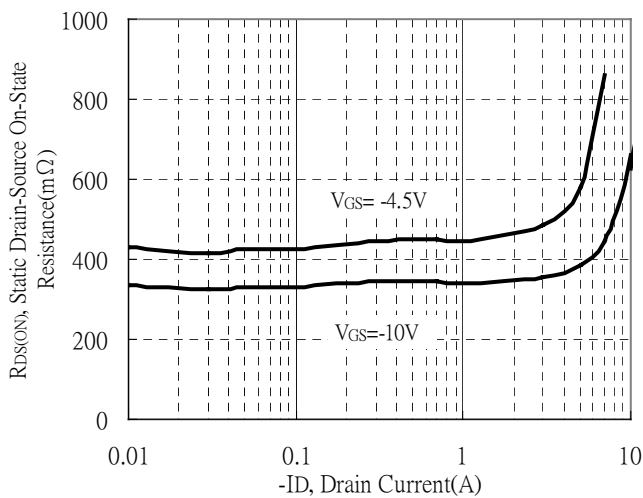


Fig3. Static Drain-Source On-State resistance vs Drain Current

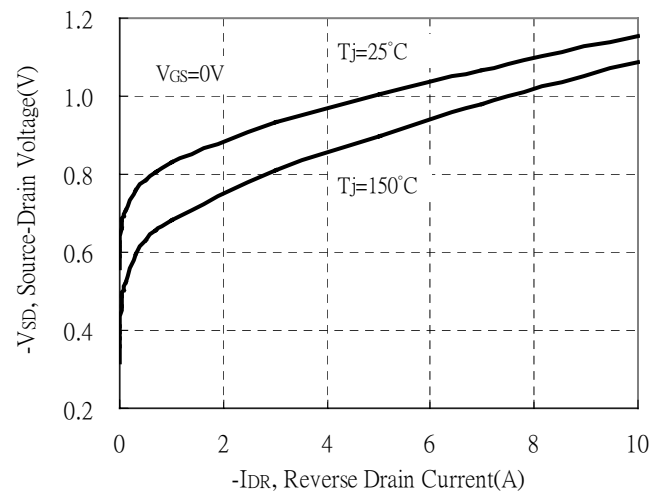


Fig4. Reverse Drain Current vs Source-Drain Voltage

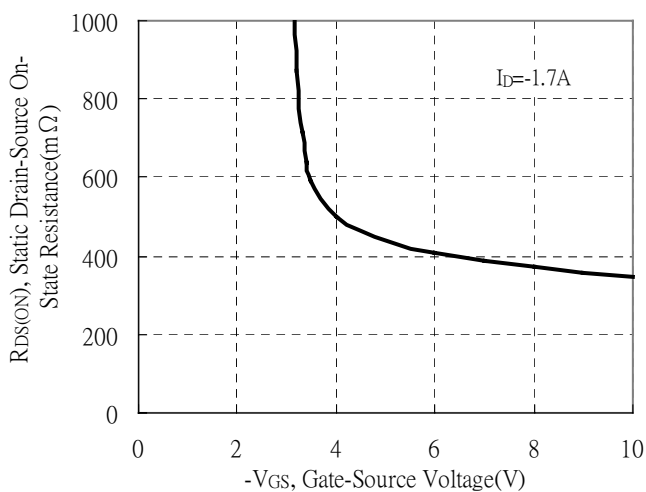


Fig5. Static Drain-Source On-State Resistance vs Gate-Source Voltage

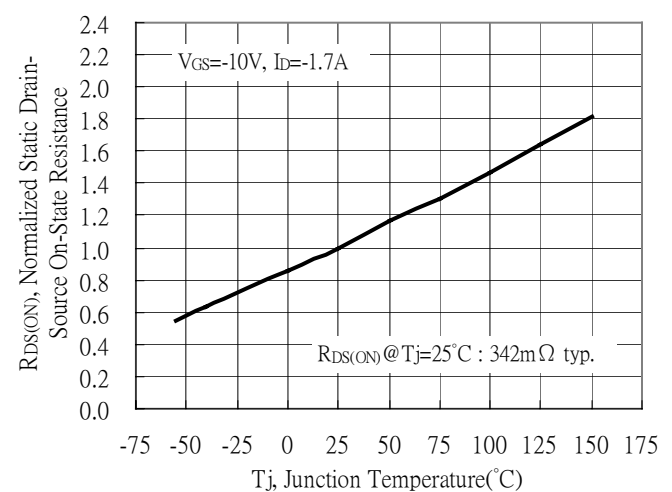


Fig6. Drain-Source On-State Resistance vs Junction Temperature

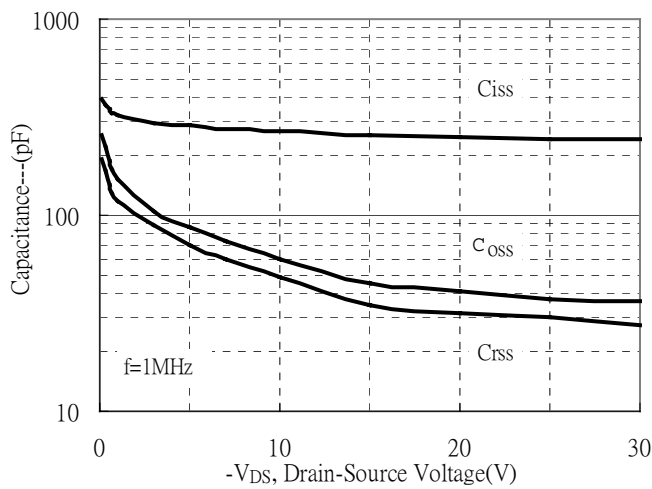


Fig7. Capacitance vs Drain-to-Source Voltage

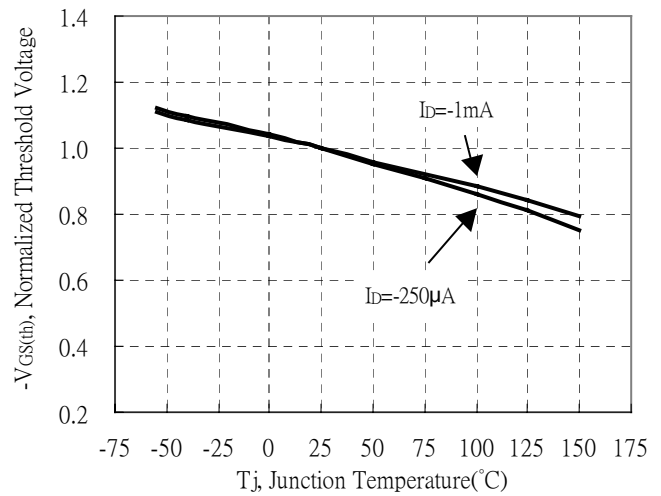


Fig8. Threshold Voltage vs Junction Temperature

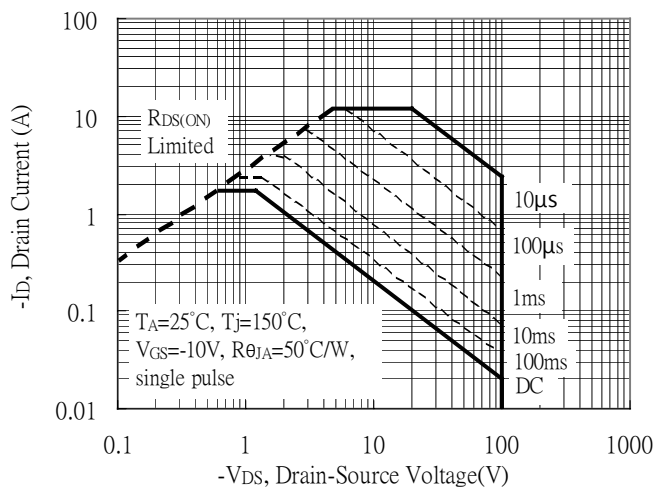


Fig9. Maximum Safe Operating Area

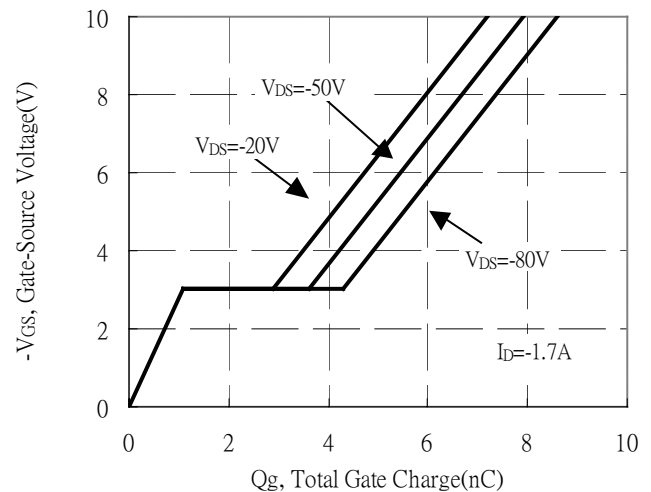


Fig10. Gate Charge Characteristics

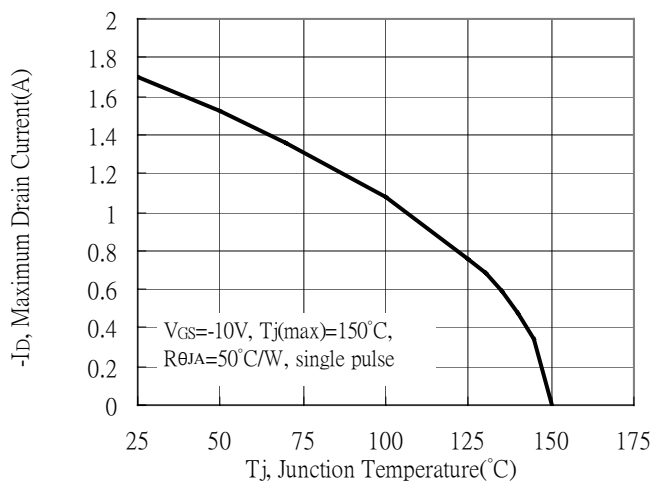


Fig11. Maximum Drain Current vs Junction Temperature

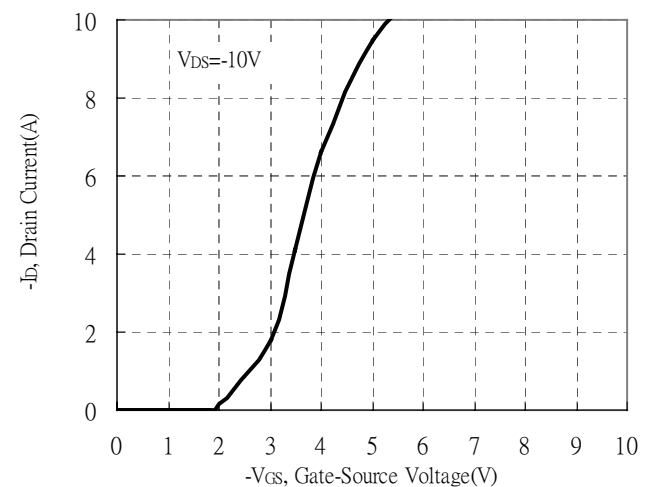


Fig12. Typical Transfer Characteristics

