



General Description

The HSS3400D is the high cell density trenched N-ch MOSFETs, which provides excellent R_{DS(on)} and efficiency for most of the small power switching and load switch applications.

The HSS3400D meet the RoHS and Green Product requirement with full function reliability approved.

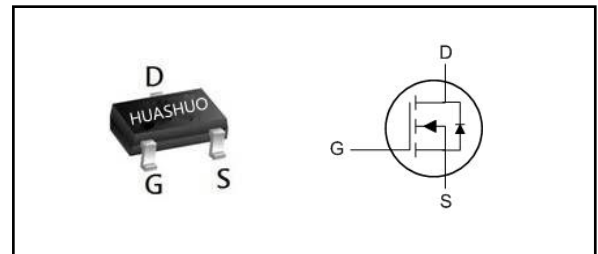
Features

- Green Device Available
- Super Low Gate Charge
- Excellent C_{dv/dt} effect decline
- Advanced high cell density Trench Technology

Product Summary

V _{DS}	30	V
R _{DS(ON),typ}	17.5	mΩ
I _D	7.0	A

SOT-23L Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	30	V
V _{GS}	Gate-Source Voltage	± 12	V
I _D @T _A =25°C	Continuous Drain Current, V _{GS} @ 4.5V(T _J =150°C) ¹	7	A
I _D @T _A =70°C	Continuous Drain Current, V _{GS} @ 4.5V(T _J =150°C) ¹	5.6	A
I _{DM}	Pulsed Drain Current ²	28	A
P _D @T _A =25°C	Total Power Dissipation ¹	1.4	W
P _D @T _A =70°C	Total Power Dissipation ¹	0.9	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient ¹	---	125	°C/W
R _{θJC}	Thermal Resistance Junction-Case	---	80	°C/W

Note :

1.Surface mounted on 1" x 1" FR4 board.

2.Pulse width limited by maximum junction temperature.



Electrical Characteristics ($T_J=25\text{ }^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=4.5V$, $I_D=5A$	---	17.5	23	$m\Omega$
		$V_{GS}=2.5V$, $I_D=4A$	---	21.5	28	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	0.5	0.9	1.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=30V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 12V$, $V_{DS}=0V$	---	---	± 100	nA
R_G	Gate resistance	$f=1.0\text{MHz}$	---	1.5	---	Ω
Q_g	Total Gate Charge (4.5V)	$V_{DS}=15V$, $V_{GS}=4.5V$, $I_D=5.5A$	---	9.1	---	nC
Q_{gs}	Gate-Source Charge		---	2.1	---	
Q_{gd}	Gate-Drain Charge		---	2.8	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V$, $V_{GS}=10V$, $R_G=3\Omega$ $R_L=2.6\Omega$	---	3	---	ns
T_r	Rise Time		---	2.5	---	
$T_{d(off)}$	Turn-Off Delay Time		---	25	---	
T_f	Fall Time		---	4	---	
C_{iss}	Input Capacitance	$V_{DS}=15V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	940	---	pF
C_{oss}	Output Capacitance		---	63	---	
C_{rss}	Reverse Transfer Capacitance		---	52	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=1A$, $T_J=25^{\circ}\text{C}$	---	---	1.2	V

Note :

1.Pulse test: pulse width $\leq 300\mu s$, duty $\leq 2\%$.

2.Guaranteed by design, not subject to production testing.



Typical Characteristics

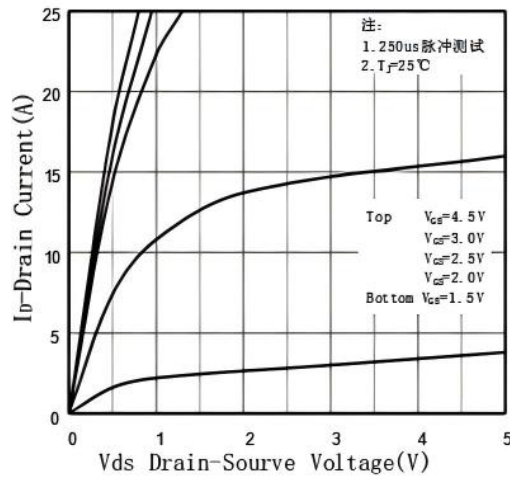


Fig.1 Output Characteristic

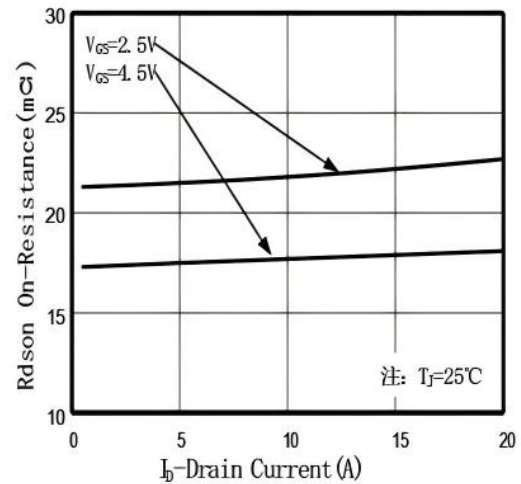


Fig.2 On-Resistance vs. Drain Current

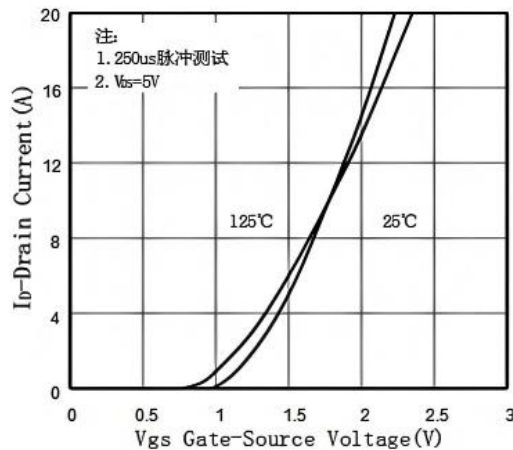


Fig.3 Transfer Characteristic

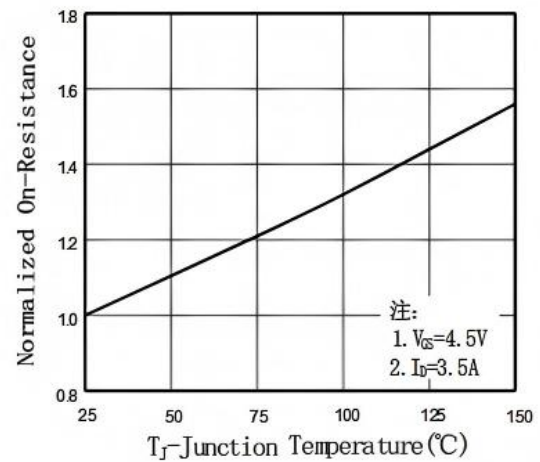


Fig.4 On-Resistance vs. Junction Temperature

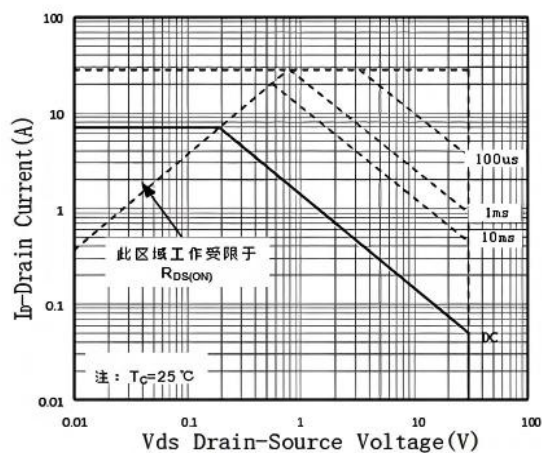


Fig.5 Safe Operation Area

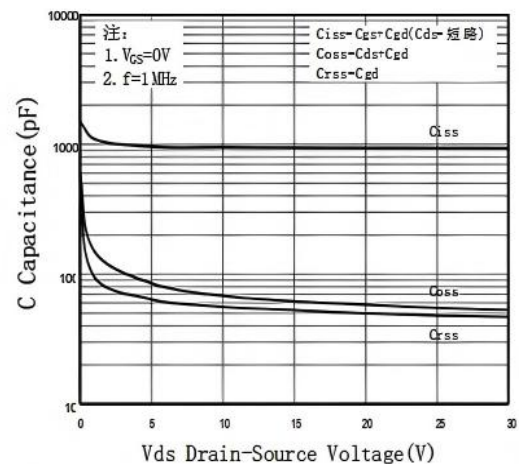


Fig.6 Capacitance Characteristic

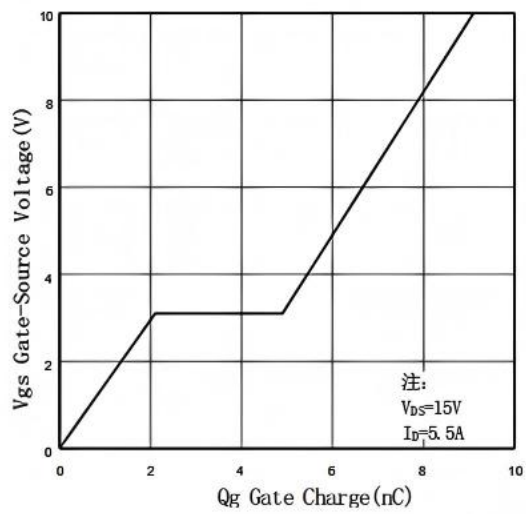


Fig.7 Gate-Charge Characteristic

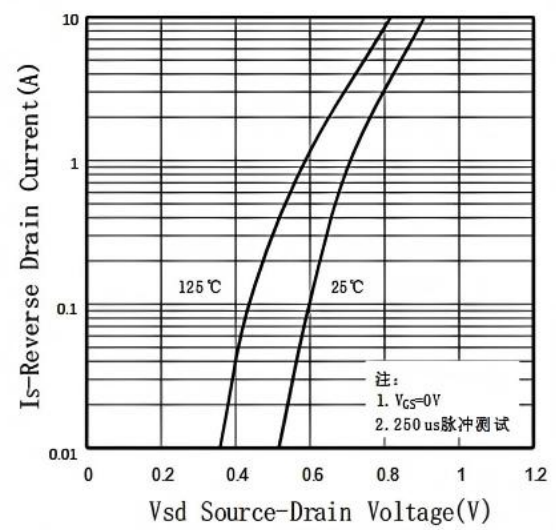


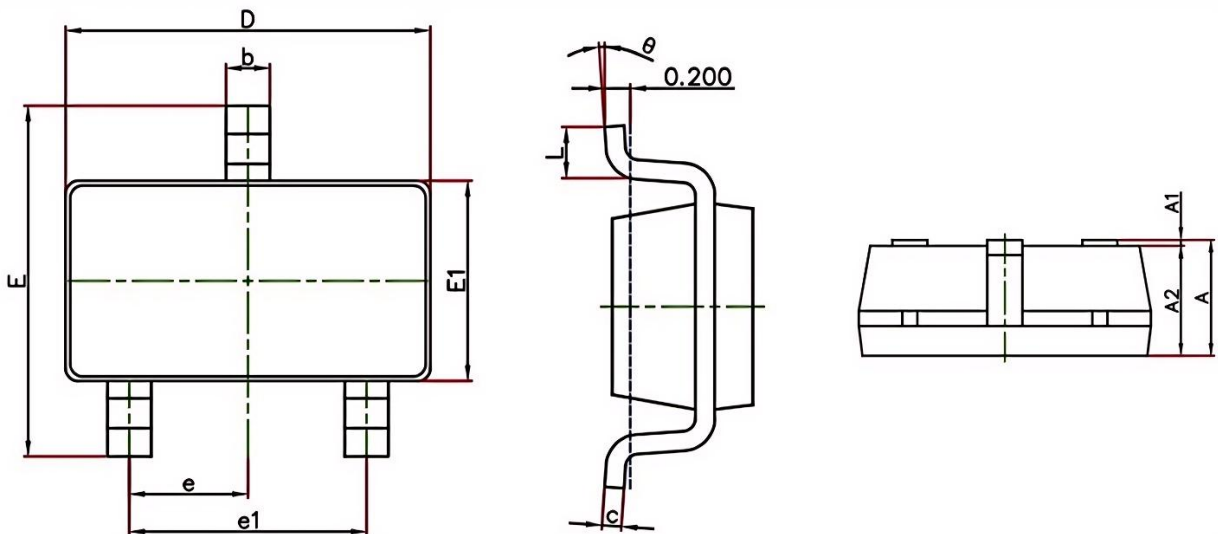
Fig.8 Body Diode Characteristic



Ordering Information

Part Number	Package code	Packaging
HSS3400D	SOT-23L	3000/Tape&Reel

SOT-23L Package Outline



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
C	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°



HSS3400D TOP Marking

