

General Description

The HSST2302 is the high cell density trench N-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications. The HSST2302 meets the RoHS and Green Product requirement with full function reliability approved.

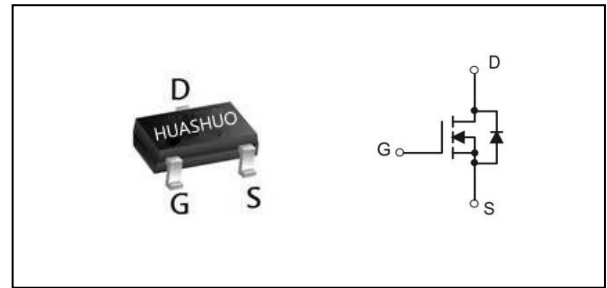
Features

- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability
- Low Threshold

Product Summary

V_{DS}	20	V
$R_{DS(ON),typ}$	50	mΩ
I_D	2	A

SOT-523 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±12	V
$I_D@T_A=25^{\circ}C$	Continuous Drain Current, V_{GS} @ 4.5V ¹	2	A
$I_D@T_A=70^{\circ}C$	Continuous Drain Current, V_{GS} @ 4.5V ¹	1.6	A
I_{DM}	Pulsed Drain Current ²	8	A
$P_D@T_A=25^{\circ}C$	Total Power Dissipation ¹	300	mW
$P_D@T_A=70^{\circ}C$	Total Power Dissipation ¹	190	mW
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
$R_{\theta JA}$	Thermal Resistance Junction-ambient ¹ ≤ 10s	---	416	°C/W

Note :

1.The data tested by surface mounted on a 1 inch² FR-4 board.

2.Pulse width limited by maximum junction temperature.



Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	20	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =4.5V, I _D =2A	---	50	65	mΩ
		V _{GS} =2.5V, I _D =1A	---	65	85	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	0.4	0.65	1.0	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =20V, V _{GS} =0V, T _J =25°C	---	---	1	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±12V, V _{DS} =0V	---	---	±100	nA
R _G	Gate resistance	f=1.0MHz	---	15	---	Ω
Q _g	Total Gate Charge	V _{DS} =10V, V _{GS} =4.5V, I _D =2.0A	---	3.1	---	nC
Q _{gs}	Gate-Source Charge		---	0.4	---	
Q _{gd}	Gate-Drain Charge		---	0.7	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =10V, V _{Gen} =4.5V, R _{GEN} =6Ω I _D =2.0A	---	9	---	ns
T _r	Rise Time		---	42	---	
T _{d(off)}	Turn-Off Delay Time		---	15	---	
T _f	Fall Time		---	8	---	
C _{iss}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1.0MHz	---	197	---	pF
C _{oss}	Output Capacitance		---	27	---	
C _{rss}	Reverse Transfer Capacitance		---	22	---	
V _{SD}	Diode forward voltage	V _{GS} =10V, I _S =1.0A	---	---	1.2	V

Note :

1.Pulse Test : Pulse width ≤ 300μs, duty cycle ≤ 2%.

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



Typical Characteristics

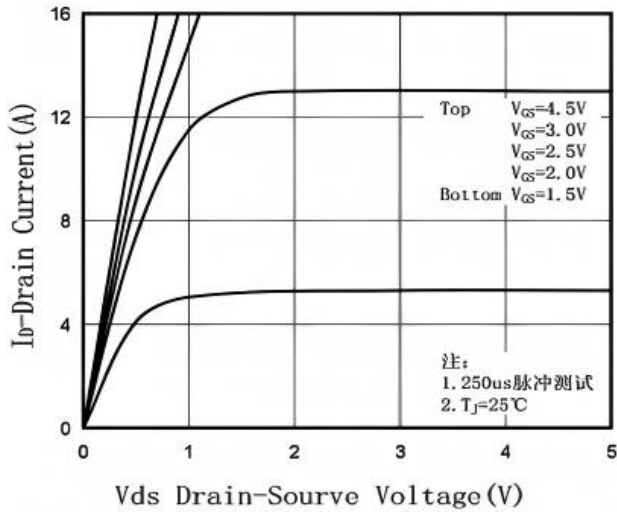


Fig.1 Output Characteristic

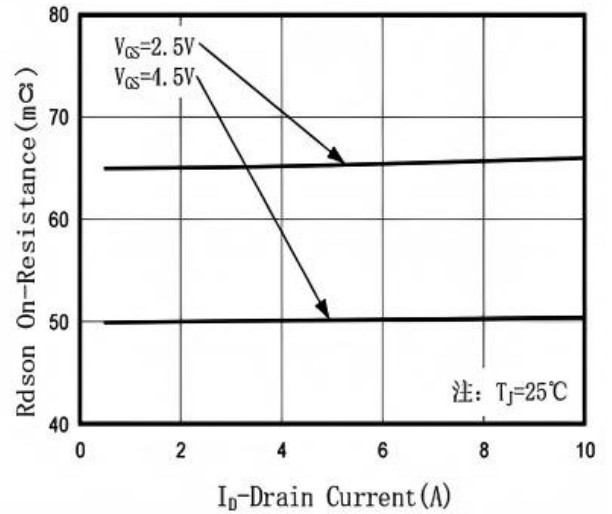


Fig.2 On-Resistance vs. Drain Current

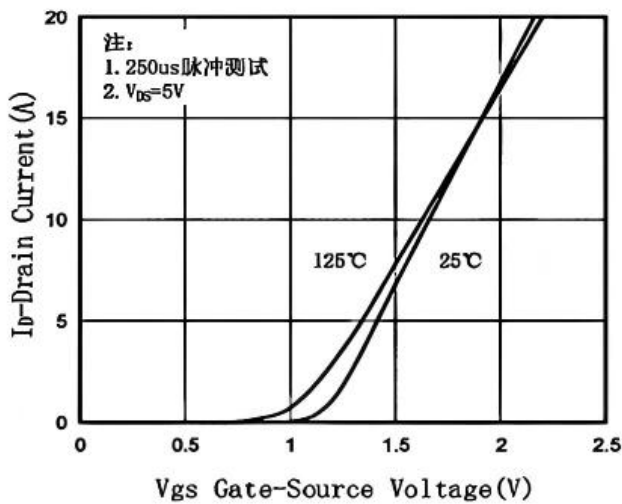


Fig.3 Transfer Characteristic

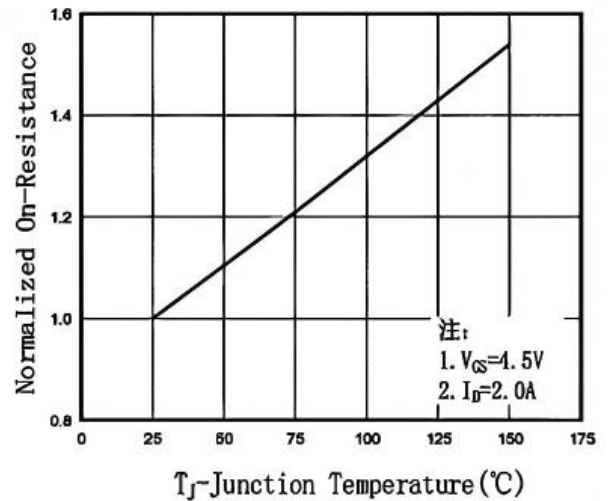


Fig.4 On-Resistance vs. Junction

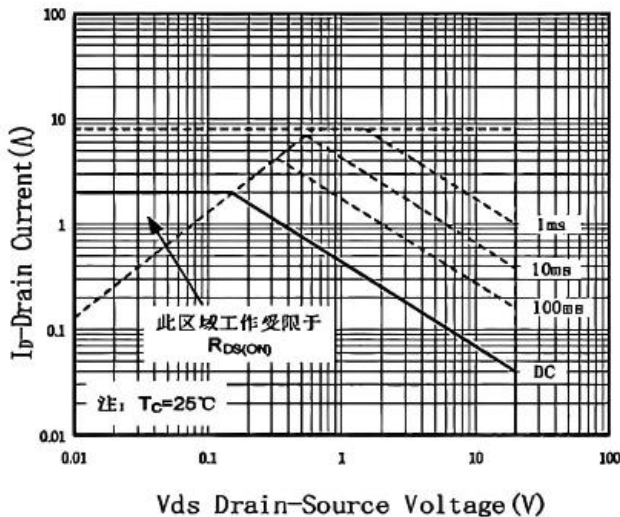


Fig.5 Safe Operation Area

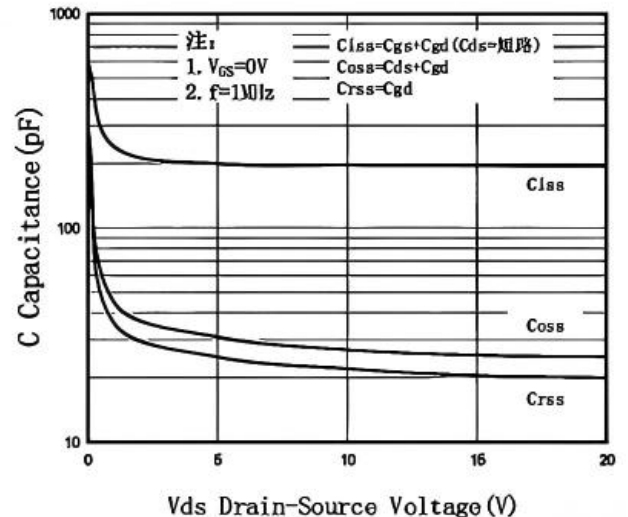


Fig.6 Capacitance

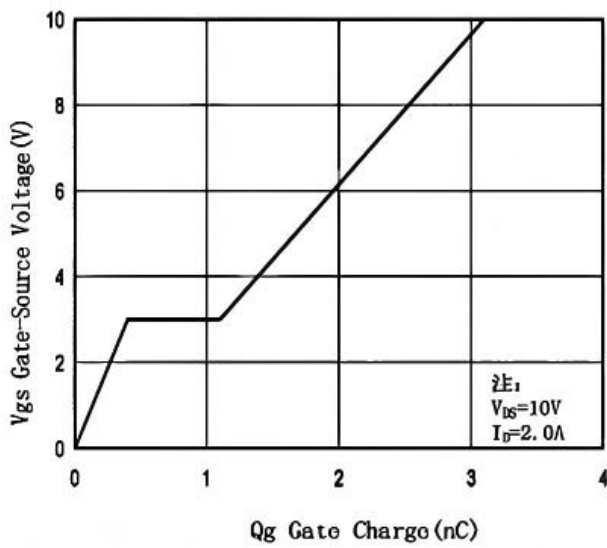


Fig.7 Gate-Charge Characteristic

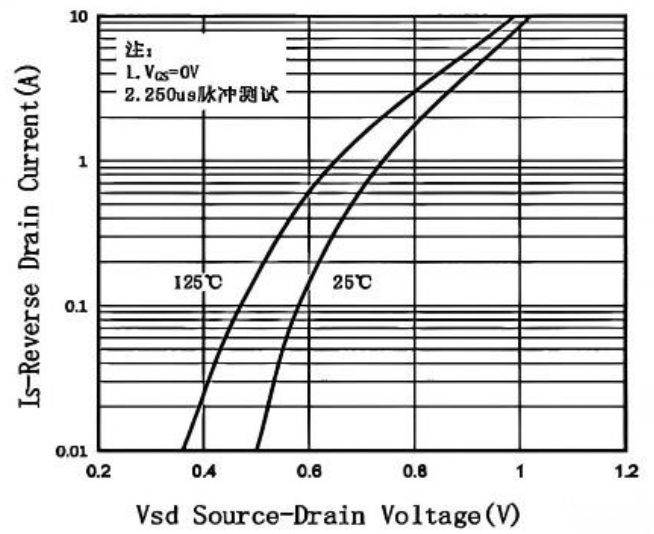


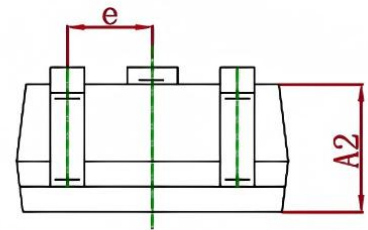
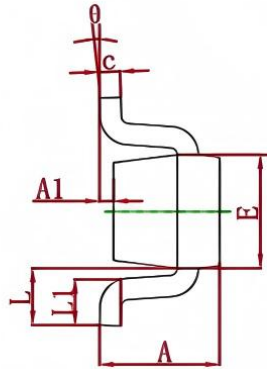
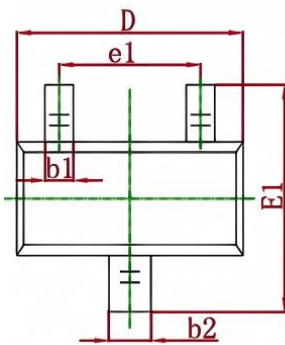
Fig.8 Body Diode Characteristic



Ordering Information

Part Number	Package code	Packaging
HSST2302	SOT-523	3000/Tape&Reel

SOT-523 Package Outline



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
C	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°



HSST2302 TOP Marking

