

Description

The HSSN5002 is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

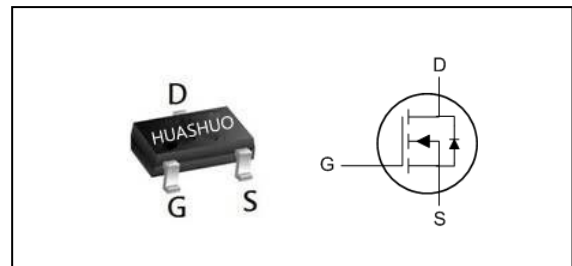
The HSSN5002 meet the RoHS and Green Product requirement with full function reliability approved.

- Green Device Available
- Rugged and Reliable
- Battery Operated Systems
- Advanced high cell density Trench technology

Product Summary

V_{DS}	50	V
$R_{DS(ON),max}$	3.4	Ω
I_D	220	mA

SOT323 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	50	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_A=25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V_1$	0.22	A
$P_D@T_A=25^\circ C$	Total Power Dissipation ³	0.3	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient(steady state) ¹	---	410	$^\circ C/W$



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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
B _V DSS	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	50	---	---	V
ΔB _V DSS/ΔT _J	BVDSS Temperature Coefficient	Reference to 25°C, I _D =1mA	---	0.122	---	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =0.22A	---	---	3.4	Ω
		V _{GS} =4.5V, I _D =0.22A	---	---	6	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	0.8	---	1.5	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient		---	-4.84	---	mV/°C
I _{DSS}	Drain-Source Leakage Current	V _{DS} =50V, V _{GS} =0V, T _J =25°C	---	---	0.5	uA
		V _{DS} =50V, V _{GS} =0V, T _J =55°C	---	---	100	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =2A	0.12	---	---	S
T _{d(on)}	Turn-On Delay Time	V _{DD} =30V, V _{GS} =10V, R _G =6Ω I _D =0.3A	---	---	4	ns
T _r	Rise Time		---	---	17	
T _{d(off)}	Turn-Off Delay Time		---	---	35	
T _f	Fall Time		---	---	13	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	26	---	pF
C _{oss}	Output Capacitance		---	14	---	
C _{rss}	Reverse Transfer Capacitance		---	5	---	

Diode Characteristics

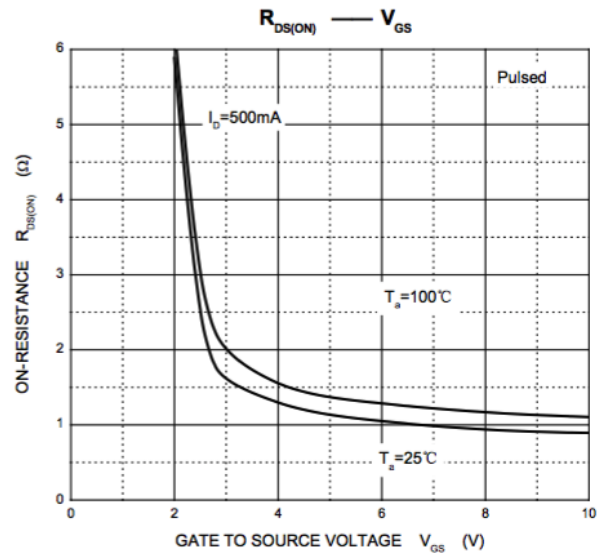
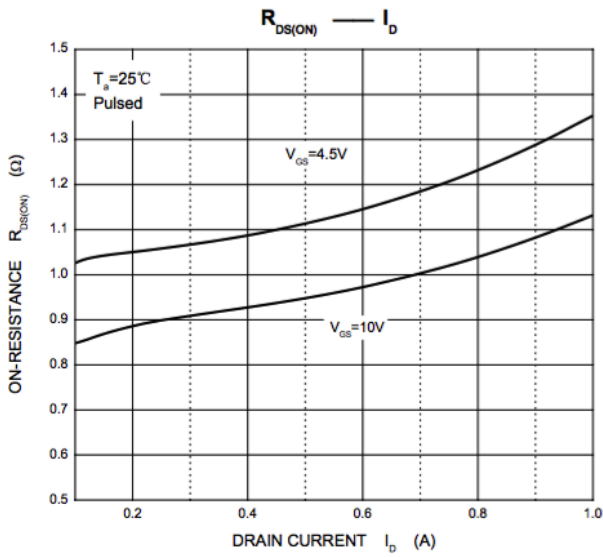
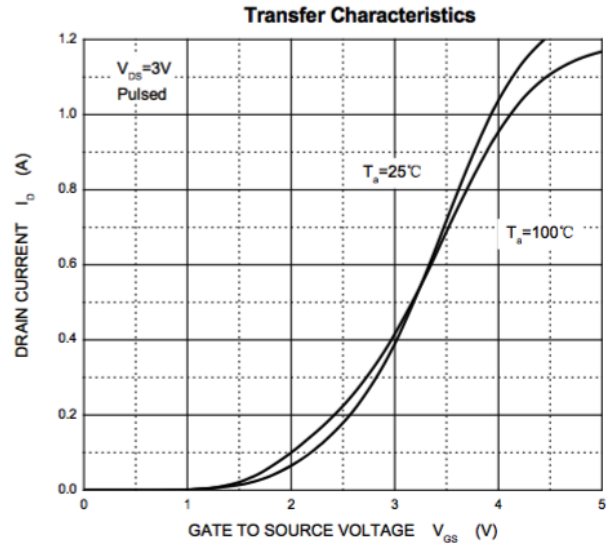
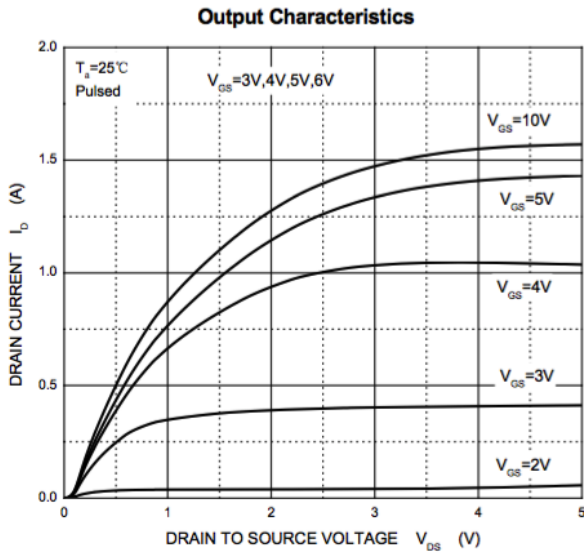
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current ^{1,4}	V _G =V _D =0V, Force Current	---	---	0.23	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V, I _S =0.44A, T _J =25°C	---	---	1.4	V

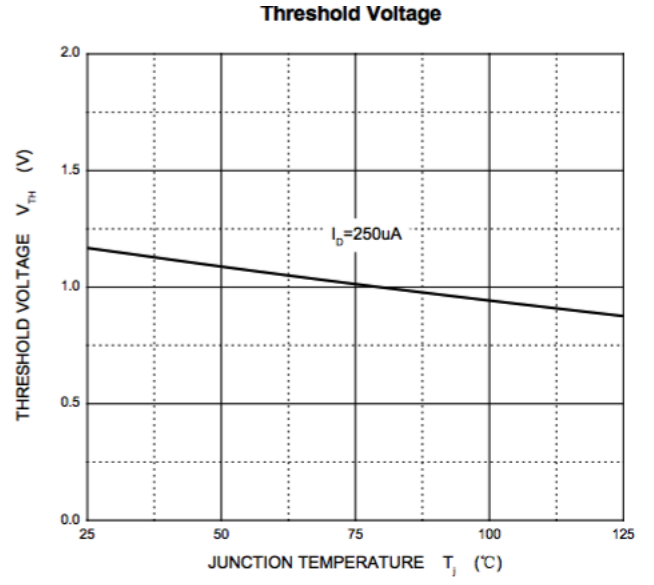
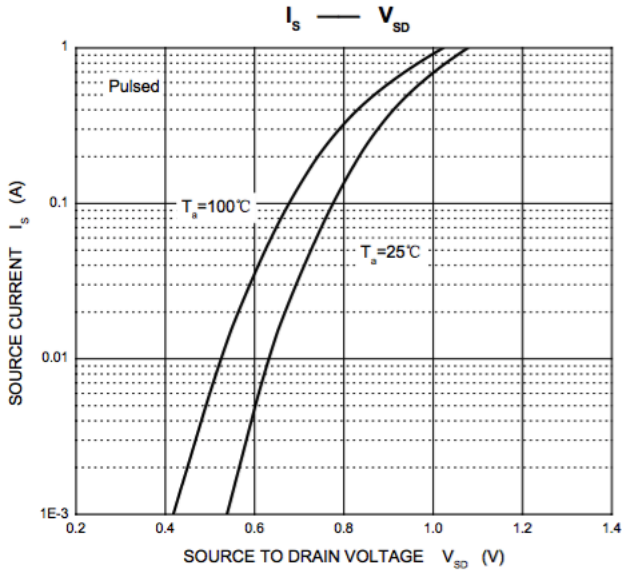
Note :

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
- 3.The power dissipation is limited by 150°C junction temperature
- 4.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.



Typical Characteristics

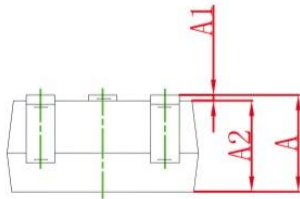
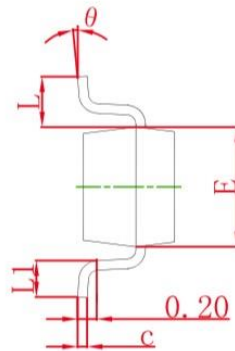
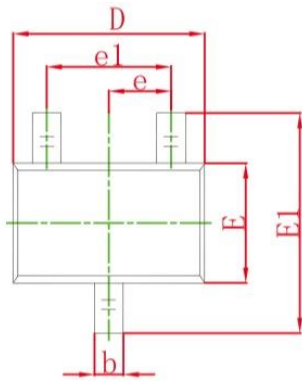






Ordering Information

Part Number	Package code	Packaging
HSSN5002	SOT-323	3000/Tape&Reel



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°