

Description

We declare that the material of product compliance with Rohs requirements and Halogen Free.

ESD protected

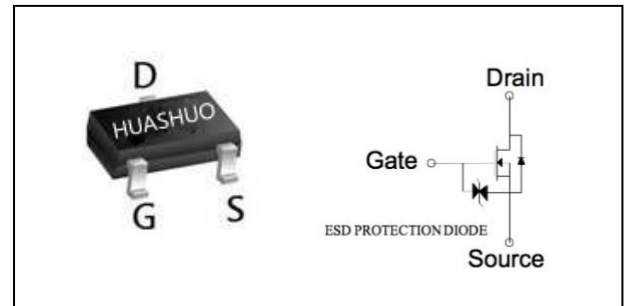
Low RDS(on)

- Low side load switch
- Level shift circuitis
- DC-DC converter
- Portable applications i.e. DSC, PDA, Cell Phone, etc.

Product Summary

V_{DS}	60	V
$R_{DS(ON),typ}$	1	Ω
I_D	0.3	A

SOT23 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V_1$	300	mA
$I_D@T_A=70^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V_1$	190	mA
I_{DM}	Pulsed Drain Current ₂	1	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation ₃	0.35	W
T_{STG}	Storage Temperature Range	-40 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-40 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ₁	---	350	$^\circ\text{C/W}$

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



Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	60	---	---	V
$\Delta BV_{DSS}/\Delta T_J$	BV_{DSS} Temperature Coefficient	Reference to $25^\circ C, I_D=1mA$	---	0.054	---	$V/^\circ C$
$R_{DS(ON)}$	Static Drain-Source On-Resistance ²	$V_{GS}=10V, I_D=200mA$	---	1	2.8	Ω
		$V_{GS}=4.5V, I_D=100mA$	---	1.3	3.6	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	1.2	---	2.5	V
$\Delta V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	-4.96	---	$mV/^\circ C$
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=48V, V_{GS}=0V, T_J=25^\circ C$	---	---	1	μA
		$V_{DS}=48V, V_{GS}=0V, T_J=55^\circ C$	---	---	5	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 16V, V_{DS}=0V$	---	---	± 30	μA
g_{fs}	Forward Transconductance	$V_{DS}=50V, I_D=200mA$	---	0.18	---	S
Q_g	Total Gate Charge (4.5V)	$V_{DS}=0.5V, V_{GS}=10V, I_D=200mA$	---	1.0	---	nC
Q_{gs}	Gate-Source Charge		---	0.4	---	
Q_{gd}	Gate-Drain Charge		---	1	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=30V, V_{GEN}=10V, R_G=25\Omega, I_D=500mA, R_L=60\Omega,$	---	2.7	---	ns
T_r	Rise Time		---	2.5	---	
$T_{d(off)}$	Turn-Off Delay Time		---	13	---	
T_f	Fall Time		---	8	---	
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	---	38	---	pF
C_{oss}	Output Capacitance		---	5	---	
C_{rss}	Reverse Transfer Capacitance		---	2	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current ^{1,4}	$V_G=V_D=0V, \text{ Force Current}$	---	---	300	mA
I_{SM}	Pulsed Source Current ^{2,4}		---	---	1	A
V_{SD}	Diode Forward Voltage ²	$V_{GS}=0V, I_S=0.5A, T_J=25^\circ C$	---	---	0.85	V

Note :

1.The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.

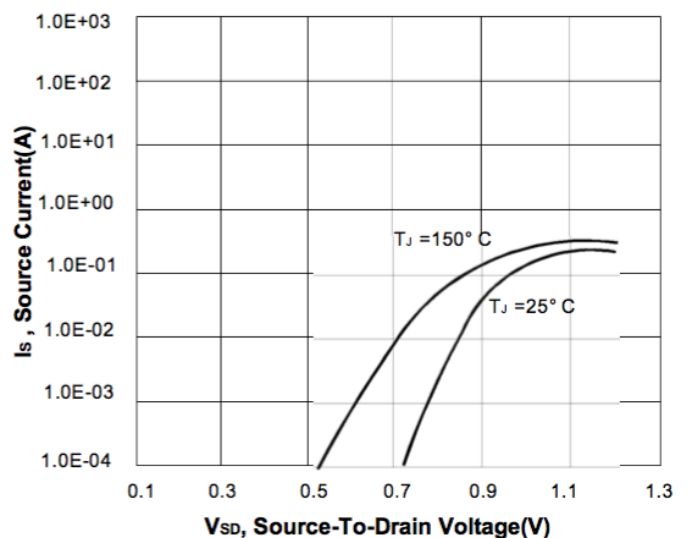
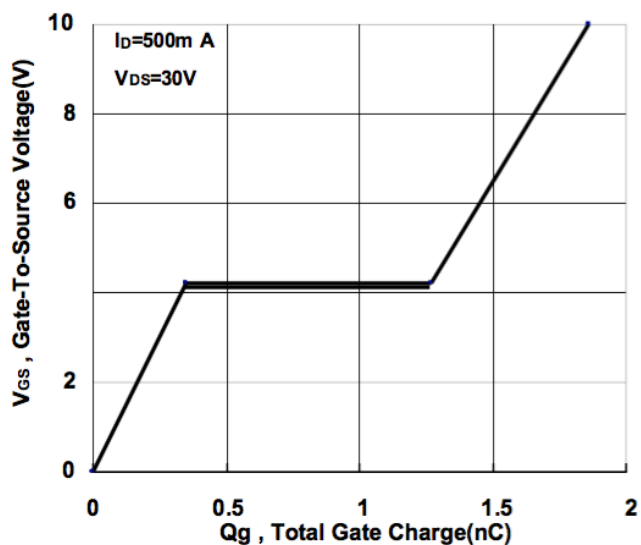
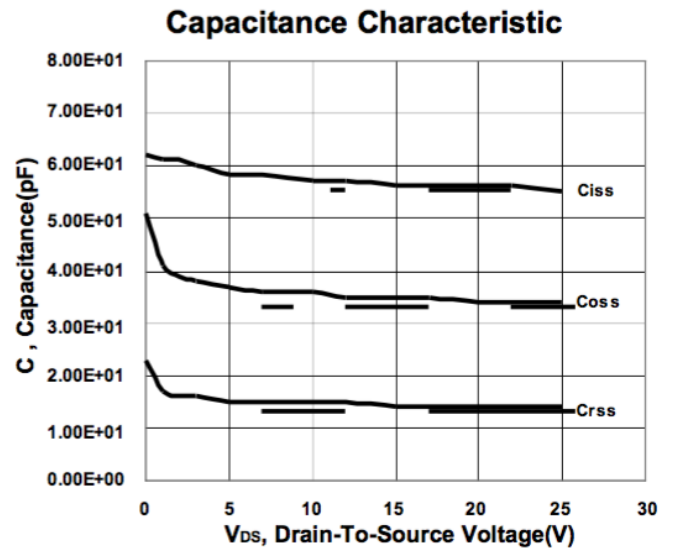
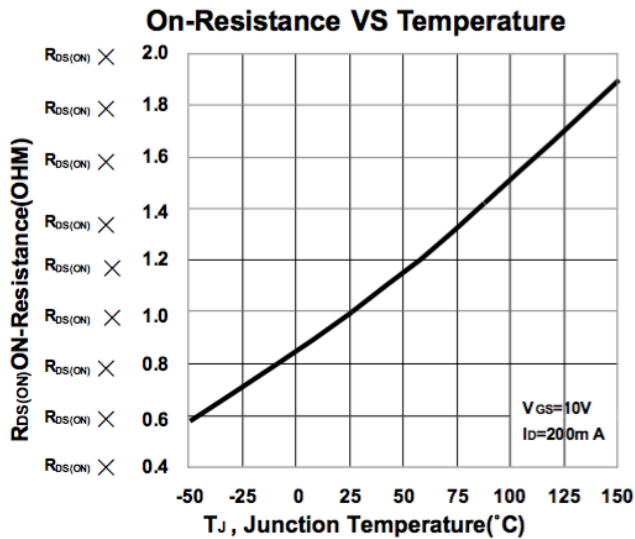
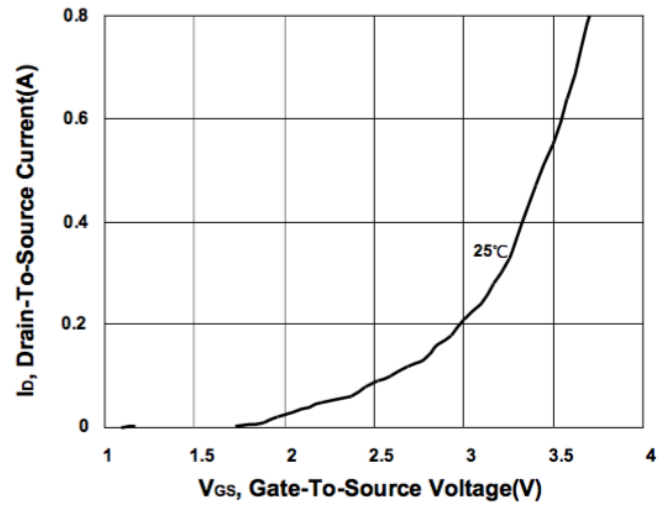
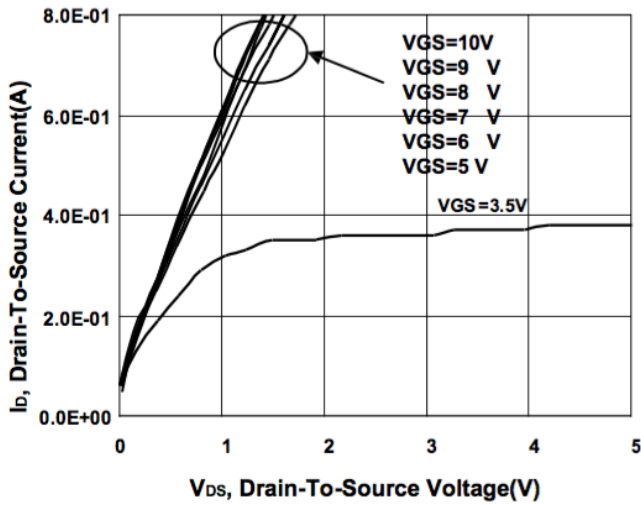
2.The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

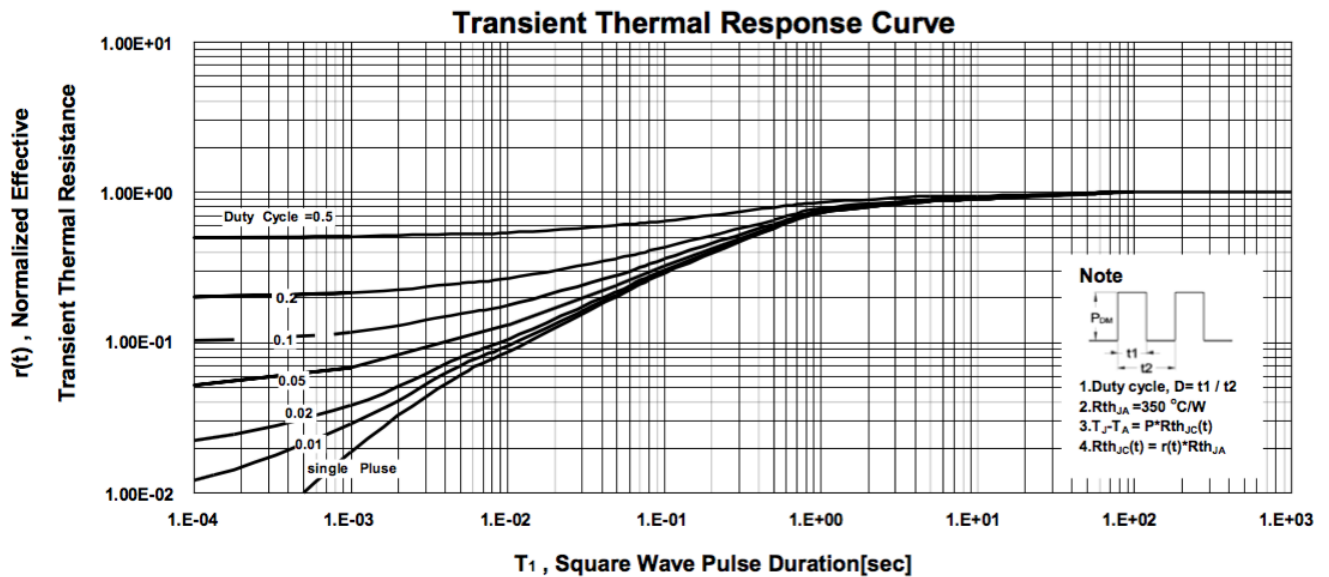
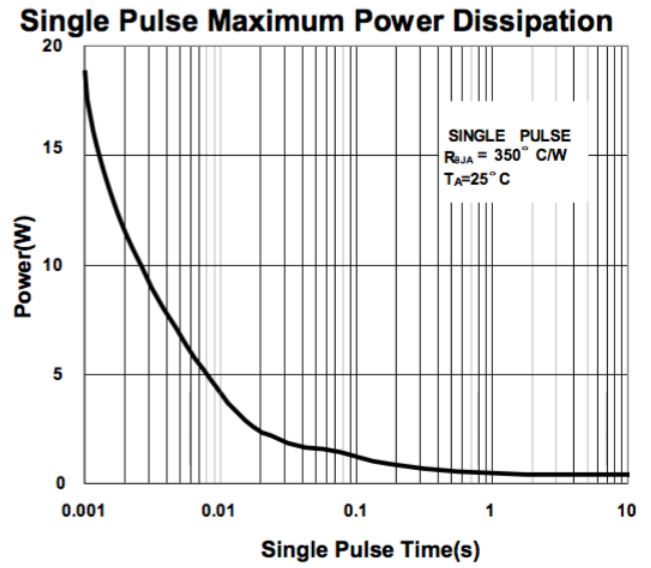
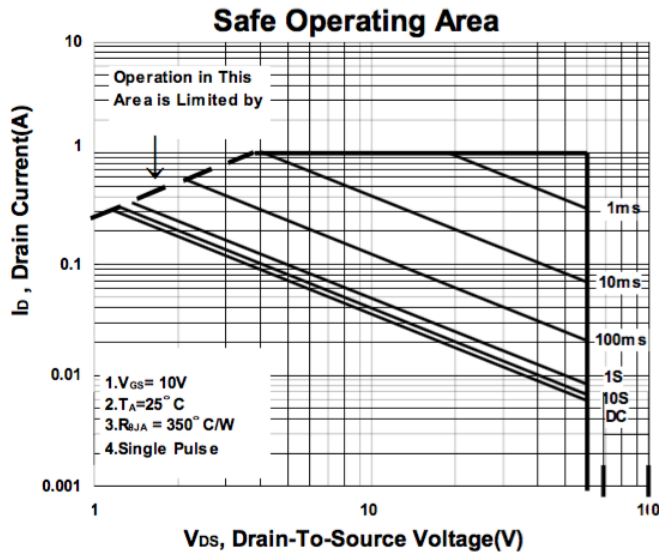
3.The power dissipation is limited by $150^\circ C$ junction temperature.

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

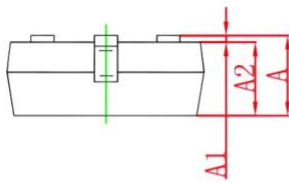
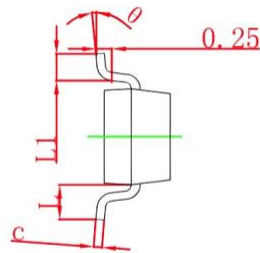
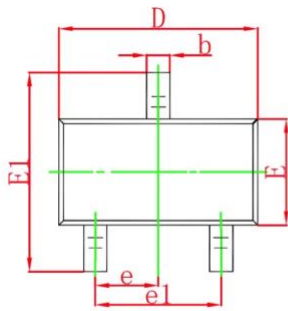






Ordering Information

Part Number	Package code	Packaging
HSS2N7002K	SOT-23	3000/Tape&Reel



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°