



Description

The HSI2102A uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

General Features

$V_{DS} = 20V$ $I_D = 2A$

$R_{DS(ON)} < 55m\Omega @ V_{GS}=4.5V$

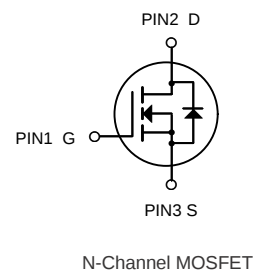
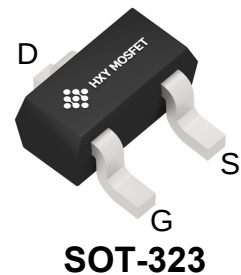
$R_{DS(ON)} < 85m\Omega @ V_{GS}=2.5V$

Application

Battery protection

Load switch

Uninterruptible power supply



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
HSI2102A	SOT-323	TS2	3000

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

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Drain Current-Continuous	2	A
P_D	Maximum Power Dissipation	0.3	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	$^{\circ}C$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 2)	125	$^{\circ}C/W$



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

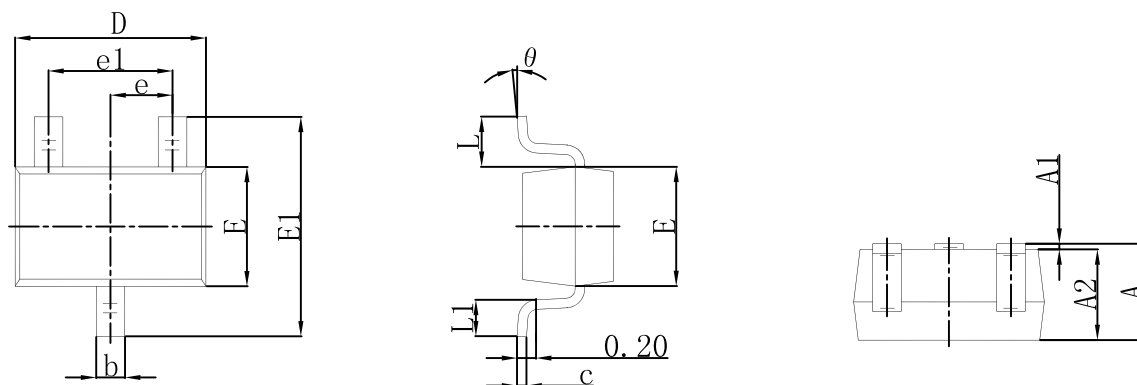
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
STATIC CHARACTERISTICCE						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =18V,V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±12V, V _{DS} = 0V			±100	nA
Gate threshold voltage (note2)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.4	0.7	1.0	V
Drain-source on-resistance (note2)	R _{DS(on)}	V _{GS} =4.5V, I _D =2.0A			55	mΩ
		V _{GS} =2.5V, I _D =0.3A			85	mΩ
Maximum Continuous Drain to Source Diode Forward Current	I _S	--			1.0	A
Diode forward voltage	V _{SD}	I _S =1.0A, V _{GS} =0V			1.2	V
DYNAMIC CHARACTERISTICS (note3)						
Input capacitance	C _{iss}	V _{DS} =10V,V _{GS} =0V, f =1MHz		300		pF
Output capacitance	C _{oss}			120		pF
Reverse transfer capacitance	C _{rss}			80		pF
SWITCHING CHARACTERISTICS (note3)						
Turn-on delay time	t _{d(on)}	V _{GS} =4.5V,V _{DS} =10V, R _L =5.1Ω,R _G =5.1Ω			15	nS
Turn-on rise time	t _r				85	nS
Turn-off delay time	t _{d(off)}				65	nS
Turn-off fall time	t _f				27	nS

Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300 μ s, Duty Cycle=2%.
3. These parameters have no way to verify.



SOT-323 Package Outline Dimensions



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
K	0°	8°	0°	8°



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