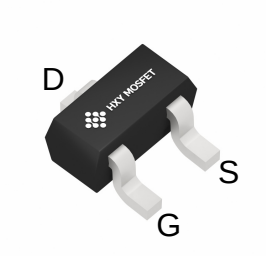
SI1013X-T1-GE3

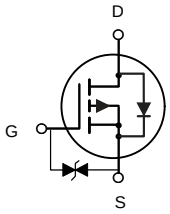
P-Channel Enhancement Mode MOSFET

Description

The SI1013X-T1-GE3 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.



SOT-523
(SC-89)



P-Channel MOSFET

General Features

V_{DS} = -20V I_D = -0.66A

$R_{DS(ON)}$ < 560 mΩ@ V_{GS}=-4.5V

$R_{DS(ON)}$ < 780 mΩ@ V_{GS}=-2.5V

ESD Rating: 1500V HBM

Application

Battery protection

Load switch

Uninterruptible power supply

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
SI1013X-T1-GE3	SOT-523(SC-89)	HXY MOSFET	3000

Absolute Maximum Ratings (T_A=25℃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	-0.66	A
P_D	Maximum Power Dissipation	150	mW
T_J,T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	℃
$R_{\theta JA}$	Thermal Resistance,Junction-to-Ambient (Note 2)	833	℃/W

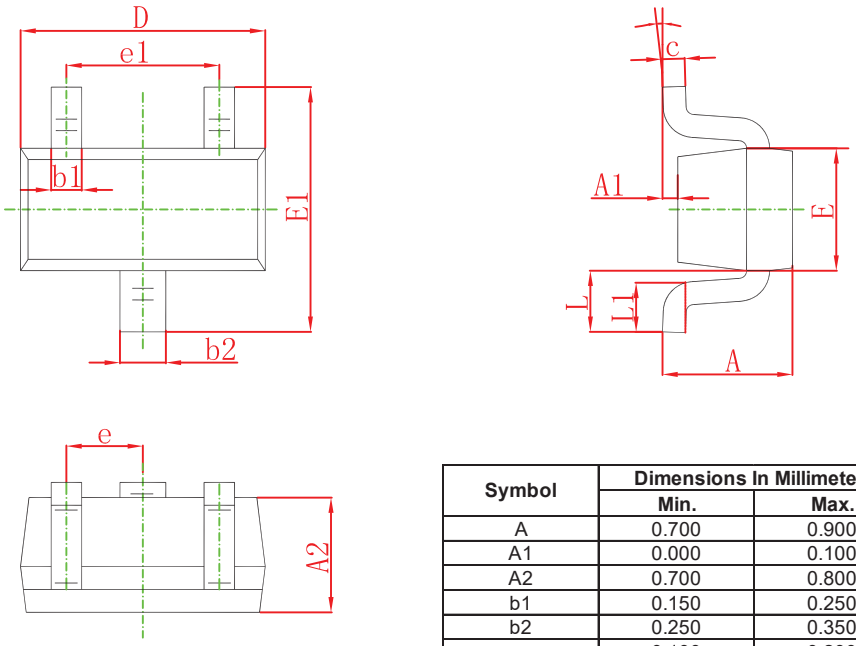
Electrical Characteristics (T_J=25℃, unless otherwise noted)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
STATIC CHARACTERISTICE						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-20			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-20V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±10V, V_{DS} = 0V			±10	μA
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 =-0.5A			0.56	Ω
		V_{GS} =-2.5V, I_D =-0.2A			0.78	Ω
Maximum Continuous Drain to Source Diode Forward Current	I_S	--			-0.6	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}	--			-1.2	A
Diode forward voltage	V_{SD}	I_S=-0.5A, V_{GS} = 0V			-1.2	V
DYNAMIC CHARACTERISTICS (note4)						
Input capacitance	C_{iss}	V_{DS} =-16V,V_{GS} =0V, f =1MHz		115		pF
Output capacitance	C_{oss}			15		pF
Reverse transfer capacitance	C_{rss}			9		pF
SWITCHING CHARACTERISTICS (note4)						
Turn-on delay time (note3)	$t_{d(on)}$	V_{GS}=-4.5V,V_{DS}=-10V, I_D=-200mA,R_{GEN}=10Ω		9		nS
Turn-on rise time (note3)	t_r			6		nS
Turn-off delay time (note3)	$t_{d(off)}$			33		nS
Turn-off fall time (note3)	t_f			22		nS

Notes:

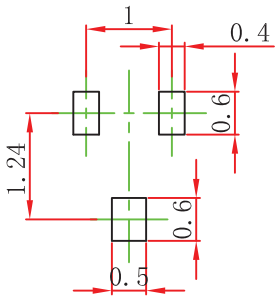
1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300μs, Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producting.

SOT-523(SC-89)Package Information



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°

SOT-523(SC-89) Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

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