



Description

The RUE002N02TL 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

$V_{DS} = 20V$ $I_D = 0.8A$

$R_{DS(ON)} < 250\text{ m}\Omega @ V_{GS}=4.5V$

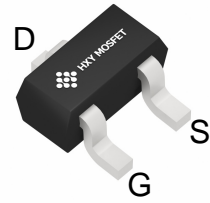
$R_{DS(ON)} < 360\text{ m}\Omega @ V_{GS}=2.5V$

Application

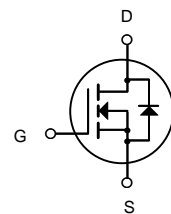
Battery protection

Load switch

Uninterruptible power supply



SOT-523
(SOT-416F)



N-Channel MOSFET

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
RUE002N02T	SOT-523(SOT-416F)	HXY MOSFET	3000

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

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 8	V
I_D	Drain Current-Continuous	0.8	A
P_D	Maximum Power Dissipation	0.15	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient ^(Note 2)	850	$^\circ\text{C/W}$



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

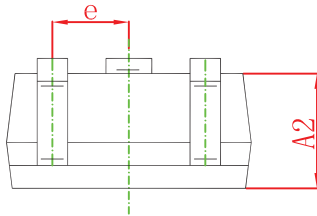
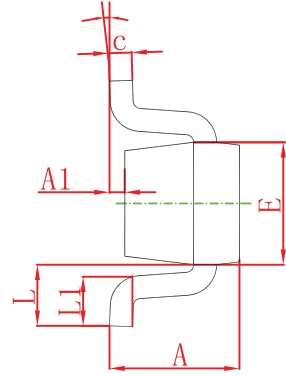
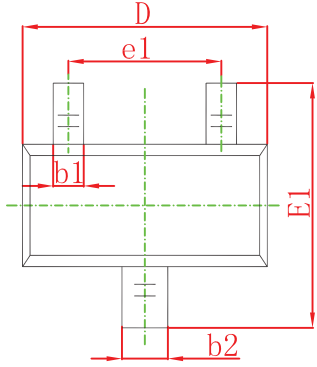
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 8V, V_{DS} = 0V$			± 10	μA
Gate threshold voltage (note2)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.7	1.0	V
Drain-source on-resistance (note2)	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 0.5A$		0.18	0.25	Ω
		$V_{GS} = 2.5V, I_D = 0.5A$		0.27	0.36	Ω
Maximum Continuous Drain to Source Diode Forward Current	I_S	--			0.8	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}	$V_{DS} = 16V, V_{GS} = 0V,$ $f = 1MHz$		50		pF
Output capacitance	C_{oss}			7		pF
Reverse transfer capacitance	C_{rss}			4.5		pF
Switching Characteristics (note4)						
Turn-on delay time (note3)	$t_{d(on)}$	$V_{GS} = 4.5V, V_{DS} = 10V, R_L = 10\Omega$		2		nS
Turn-on rise time (note3)	t_r			32		nS
Turn-off delay time (note3)	$t_{d(off)}$			47		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=300 μs , Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producing.

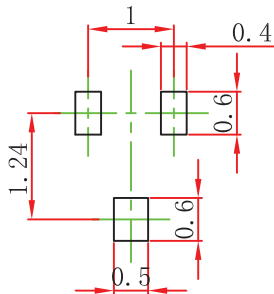


SOT-523(SOT-416F) Package Information



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 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.



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