STF202-22T1 Series

Advance Information
EMI Filter with ESD Protection

ON Semiconductor™

http://onsemi.com

Features:

- Provides USB Line Termination, Filtering and ESD Protection
- Single IC Offers Cost Savings by Replacing 3 Resistors, 2 Capacitors, and 5 TVs diodes
- Bi–directional EMI Filtering Prevents Noise from Entering/Leaving the System
- IEC61000–4–2 ESD Protection for USB Port
- Flexible Pull–down or Pull–up Line Termination to Meet USB 1.1 Low Speed and High Speed Specification

Benefits:

- TSOP–6 Package Minimizes PCB Space
- Integrated Circuit Increases System Reliability versus Discrete Component Implementation
- TVs Devices Provide ESD Protection That is Better than a Discrete Implementation because the Small IC minimizes Parasitic Inductances

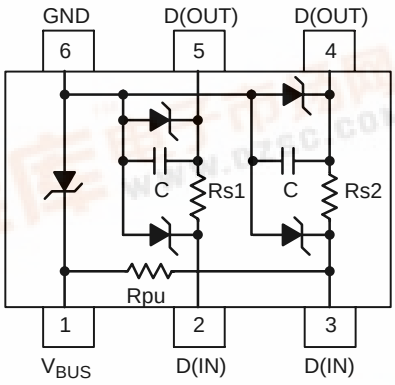
Typical Applications:

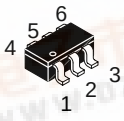
- USB Serial Ports
- Portable Equipment
- Cellular Phones
- Computers

MAXIMUM RATINGS (T_A = 25°C)

Rating	Symbol	Value	Unit
Steady State Power	P_D	225	mW
IEC61000–4–2 (Level 4) Air Discharge Contact Discharge	V_{PP}	 16 8.0	kV
Maximum Junction Temperature	T_J	150	°C
Lead Solder Temperature (10 second duration)	T_L	260	°C

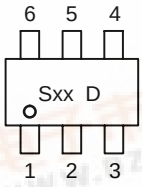
CIRCUIT DESCRIPTION





TSOP–6
CASE 318G
STYLE 8

MARKING DIAGRAM



Sxx = Specific Device Code
xx = 22 or 30
D = Date Code

ORDERING INFORMATION

Device	Package	Shipping
STF202–22T1	TSOP–6	3000/Tape & Reel
STF202–30T1	TSOP–6	3000/Tape & Reel

This document contains information on a new product. Specifications and information herein are subject to change without notice.

Publication Order Number:

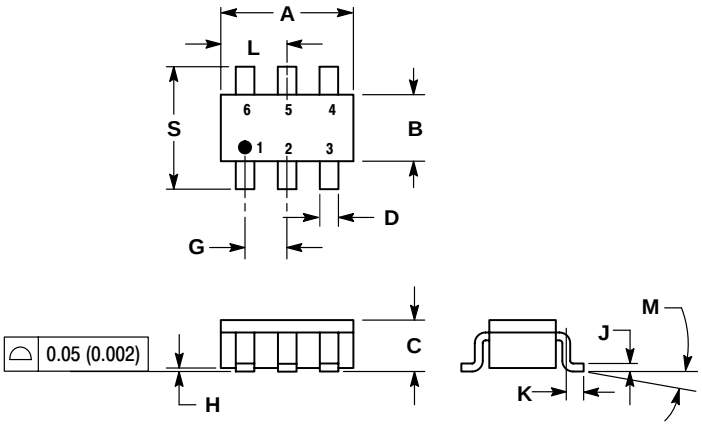
ELECTRICAL CHARACTERISTICS

Device	Device Marking	V_{RWM} (Volts)	V_{BR}@1 mA		Max I_R @ V_{RWM} = 5.25 V V_{BUS} to GND (μA)	Max I_R @ V_{RWM} = 3.3 V I/O Pin (μA)	Typical Total Line Capacitance I/O Pins to GND (pF)	Series Resistor Rs (Ω)			Pull–up Resistor Rup (kΩ)		
			Min	Max				Min	Nom	Max	Min	Nom	Max
STF202–22T1	S22	5.25	6.0	8.0	5.0	1.0	60	20	22	24	1.35	1.5	1.65
STF202–30T1	S30	5.25	6.0	8.0	5.0	1.0	60	27	30	33	1.35	1.5	1.65

OUTLINE DIMENSIONS

EMI Filter with ESD Protection

TSOP–6
CASE 318G–02
ISSUE H



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	2.90	3.10	0.1142	0.1220
B	1.30	1.70	0.0512	0.0669
C	0.90	1.10	0.0354	0.0433
D	0.25	0.50	0.0098	0.0197
G	0.85	1.05	0.0335	0.0413
H	0.013	0.100	0.0005	0.0040
J	0.10	0.26	0.0040	0.0102
K	0.20	0.60	0.0079	0.0236
L	1.25	1.55	0.0493	0.0610
M	0 °	10 °	0 °	10 °
S	2.50	3.00	0.0985	0.1181

STYLE 1:
PIN 1. DRAIN
2. DRAIN
3. GATE
4. SOURCE
5. DRAIN
6. DRAIN

STYLE 2:
PIN 1. EMITTER 2
2. BASE 1
3. COLLECTOR 1
4. EMITTER 1
5. BASE 2
6. COLLECTOR 2

STYLE 3:
PIN 1. ENABLE
2. N/C
3. R BOOST
4. Vz
5. V in
6. V out

STYLE 4:
PIN 1. N/C
2. V in
3. NOT USED
4. GROUND
5. ENABLE
6. LOAD

STYLE 5:
PIN 1. EMITTER 2
2. BASE 2
3. COLLECTOR 1
4. EMITTER 1
5. BASE 1
6. COLLECTOR 2

STYLE 6:
PIN 1. COLLECTOR
2. COLLECTOR
3. BASE
4. EMITTER
5. COLLECTOR
6. COLLECTOR

STYLE 7:
PIN 1. COLLECTOR
2. COLLECTOR
3. BASE
4. N/C
5. COLLECTOR
6. EMITTER

STYLE 8:
PIN 1. Vbus
2. D(in)–
3. D(in)+
4. D(out)+
5. D(out)–
6. GND

PUBLICATION ORDERING INFORMATION

Literature Fulfillment:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303–675–2175 or 800–344–3860 Toll Free USA/Canada
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