

STF202-22T1 Series

Advance Information EMI Filter with ESD Protection

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 ($T_A = 25^\circ\text{C}$)

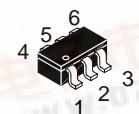
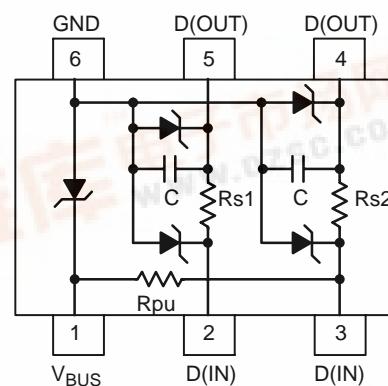
Rating	Symbol	Value	Unit
Steady State Power	P_D	225	mW
IEC61000-4-2 (Level 4)	V_{PP}		kV
Air Discharge		16	
Contact Discharge		8.0	
Maximum Junction Temperature	T_J	150	$^\circ\text{C}$
Lead Solder Temperature (10 second duration)	T_L	260	$^\circ\text{C}$



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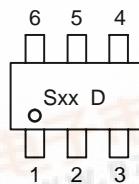
<http://onsemi.com>

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.

STF202-22T1 Series

ELECTRICAL CHARACTERISTICS

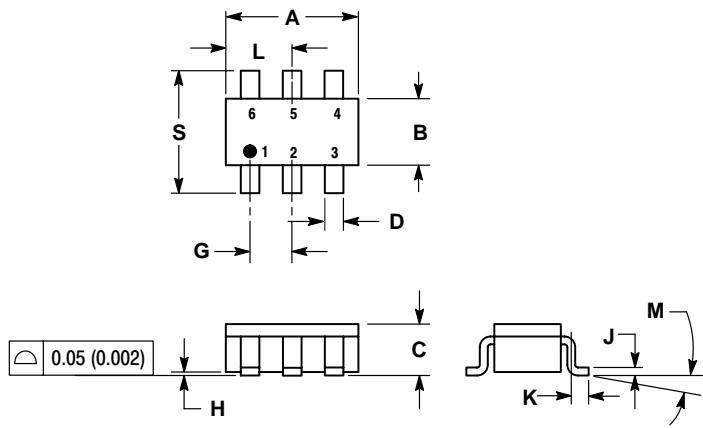
Device	Device Marking	V _{RWM} (Volts)	V _{BR} @ 1 mA		Max I _R @ V _{RWM} = 5.25 V V _{BUS} to GND (µA)	Max I _R @ V _{RWM} = 3.3 V I/O Pin (µA)	Typical Total Line Capacitance I/O Pins to GND (pF)	Series Resistor R _s (Ω)			Pull-up Resistor R _{up} (kΩ)		
			Min	Max				Min	Nom	Max	Min	Nom	Max
STF202-22T1	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

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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.

DIM	MILLIMETERS		INCHES	
	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:

1. DRAIN
2. DRAIN
3. GATE
4. SOURCE
5. DRAIN
6. DRAIN

STYLE 2:

1. Emitter 2
2. Base 1
3. Collector 1
4. Emitter 1
5. Base 2
6. Collector 2

STYLE 3:

1. ENABLE
2. N/C
3. R BOOST
4. Vz
5. Vin
6. Vout

STYLE 4:

1. N/C
2. Vin
3. NOT USED
4. GROUND
5. ENABLE
6. LOAD

STYLE 5:

1. Emitter 2
2. Base 2
3. Collector 1
4. Emitter 1
5. Base 1
6. Collector 2

STYLE 6:

1. COLLECTOR
2. COLLECTOR
3. BASE
4. Emitter
5. COLLECTOR
6. COLLECTOR

STYLE 7:

1. COLLECTOR
2. COLLECTOR
3. BASE
4. N/C
5. COLLECTOR
6. Emitter

STYLE 8:

1. Vbus
2. D(in)-
3. D(in)+
4. D(out)+
5. D(out)-
6. GND

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