FM712

For extended common-mode RS-485

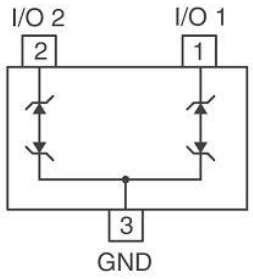
Applications

- Protection of RS-485 transceivers with extended common– mode range
- Security systems
- Automatic Teller Machines
- HFC systems
- Networks

SOT-23

Feature

- 400 watts peak pulse power(tp=8/20us)
- ESD Protection:Level 4
- Low clamping voltage
- Protects two +12v to –7v lines



IEC Compatibility

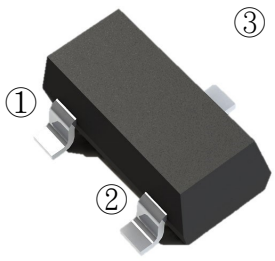
- EN61000-4
- 61000-4-2(ESD):Level4,Contact:±8kv,Air::±15kv
- 61000-4-4(EFT):40A-5/50ns
- 61000-4-5(Surge):12A,8/20us

Mechanical Characteristics

- Molded JEDEC Sot-23
- The Futurewafer® device will meet IEC61000-4-2(ESD)
- Flammability rating UL 94V-0
- Halogen Free

Device Characteristics

Maximum Ratings@25 unless otherwise specified			
Parameter	Symbol	Value	Units
Peak pulse power (tp=8/20us) see fig 1.	P_{PP}	400	Watts
Operating Temperature	T_J	-55 ~150	°C
Storage Temperature	T_{STG}	-55 ~150	°C



Pin	**Identification**
1,2	Input lines
3	Ground

Electrical Characteristics

			Pin 1 to 3 and 2 to 3 (12V TVS)			Pin 3 to 1 and 3 to 2 (7V TVS)			Units
Parameter	Symbol	Condition	Min.	Typ.	Max.	Min.	Typ.	Max.	
Reverse Stand-off Voltage	V_{RWM}	Pin 3 to 1 or pin 2 to 1			12			7	V
Reverse Breakdown Voltage	V_{BR}	I_Z=1mA	13.3			7.5			V
Reverse Leakage Current	I_R	$V_R=V_{RWM}$			1			20	uA
Forward Voltage	V_F	I_F=15mA						1.15	V
Clamping Voltage	V_C	I_{PP}=5A I_{PP}=17A,			20 26			10 12	V
Junction Capacitance	$C_{I/O-I/O}$	Vdc=0V, f=1M_{HZ}			75			75	pf

Rating and characteristic curve

Figure 1

Non-repetitive peak pulse power vs. pulse time

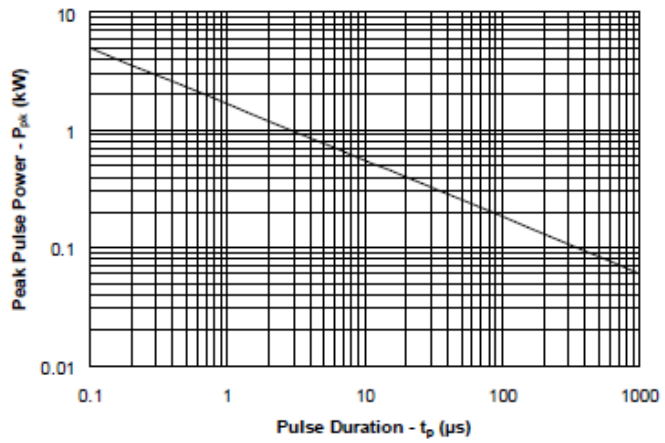


FIGURE 2
PULSE WAVE FORM

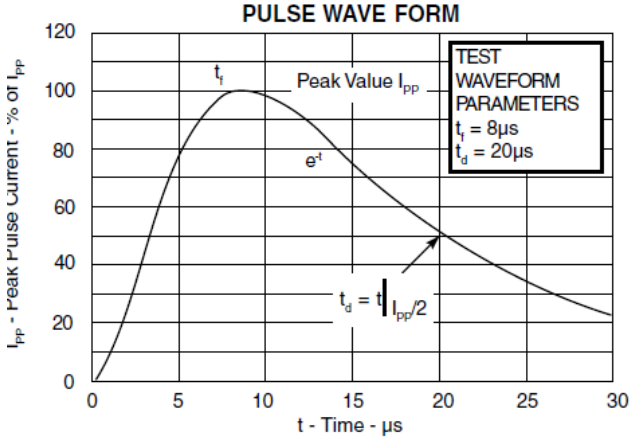


Figure 3
Power derating Curve

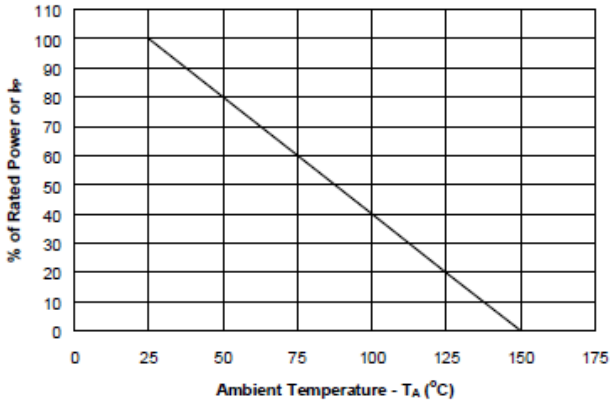
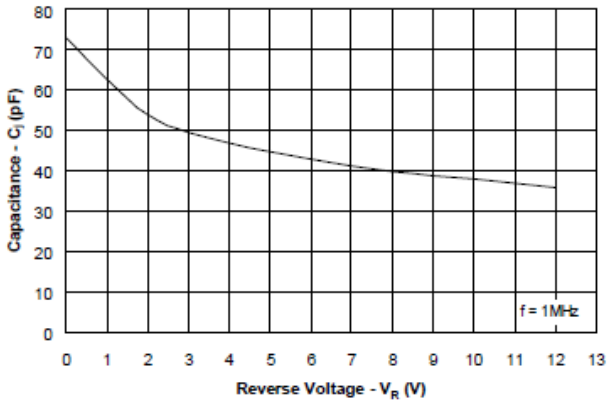


Figure 4
Capacitance vs.Reverse voltage

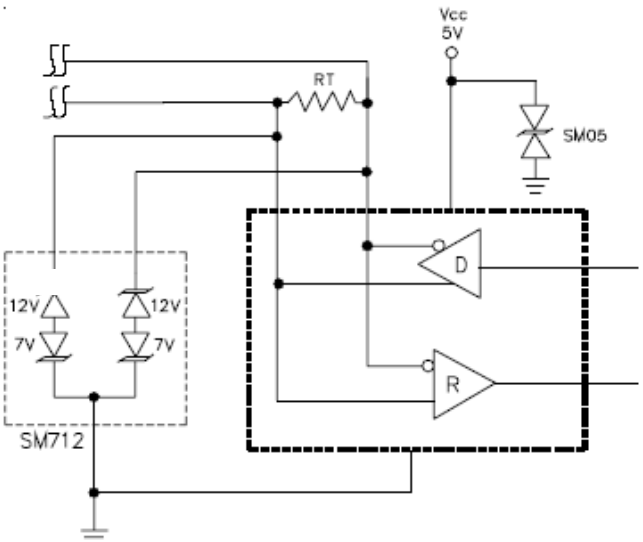


Applications information

Device connection for protectoion of two RS485 data lines

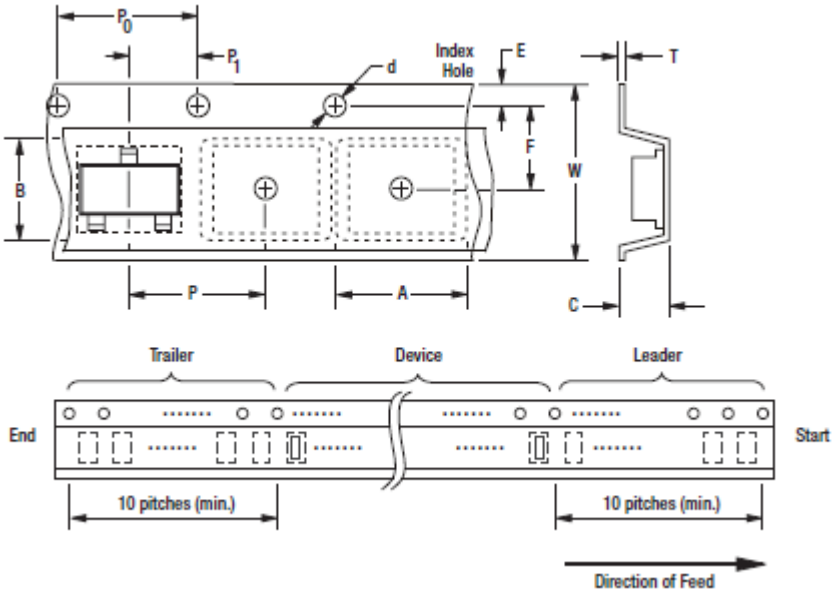
EIA RS-485 specifies a +-7v ground difference between devices on the bus.This permits the bus voltage to range from +12v to -7v.

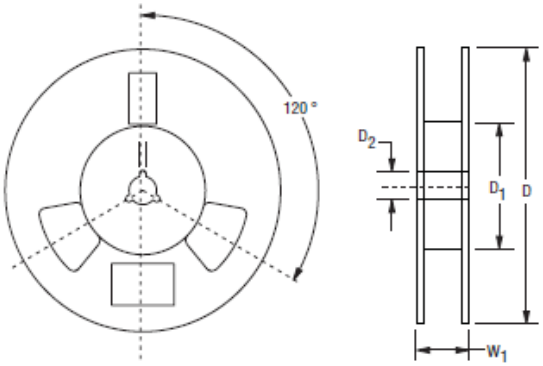
The FM712 is designed to protect two RS485 data line in extended common mode applications. The FM712 may be used to protect devices from transient voltage resulting from ESD,EFT,and lightning. The device is designed with asymmetrical operating voltages for optimum protection. The tvs diodes at pins 1 and 2 have a working voltage of 12 volts.These pins are connected to the differential data line pairs. The tvs diodes at pin 3 have a working voltage of 7 volts. Pin 3 is connected to ground. The internal tvs diodes of the FM712 will protect the transceiver input from positive transient voltage spikes greater than 12v and negative spikes greater than 7v.



A series current limiting resistor may be added in applications requiring enhanced surge immunity.

Tape&Reel information





DIMENSIONS: MM (INCHES)

Item	Symbol	SOT23
Carrier Width	A	2.25 ± 0.10 (0.088 ± 0.004)
Carrier Length	B	2.34 ± 0.10 (0.092 ± 0.004)
Carrier Depth	C	1.22 ± 0.10 (0.048 ± 0.004)
Sprocket Hole	d	1.55 ± 0.05 (0.061 ± 0.002)
Reel Outside Diameter	D	178 (7.008)
Reel Inner Diameter	D_1	50.0 (1.969) Min.
Feed Hole Diameter	D_2	13.0 ± 0.20 (0.512 ± 0.008)
Sprocket Hole Position	E	1.75 ± 0.10 (0.069 ± 0.004)
Punch Hole Position	F	3.50 ± 0.05 (0.138 ± 0.002)
Punch Hole Pitch	P	4.00 ± 0.10 (0.157 ± 0.004)
Sprocket Hole Pitch	P_0	4.00 ± 0.10 (0.157 ± 0.004)
Embossment Center	P_1	2.00 ± 0.05 (0.079 ± 0.002)
Overall Tape Thickness	T	0.20 ± 0.10 (0.008 ± 0.004)
Tape Width	W	8.00 ± 0.20 (0.315 ± 0.008)
Reel Width	W_1	14.4 (0.567) Max.
Quantity per Reel	—	3,000

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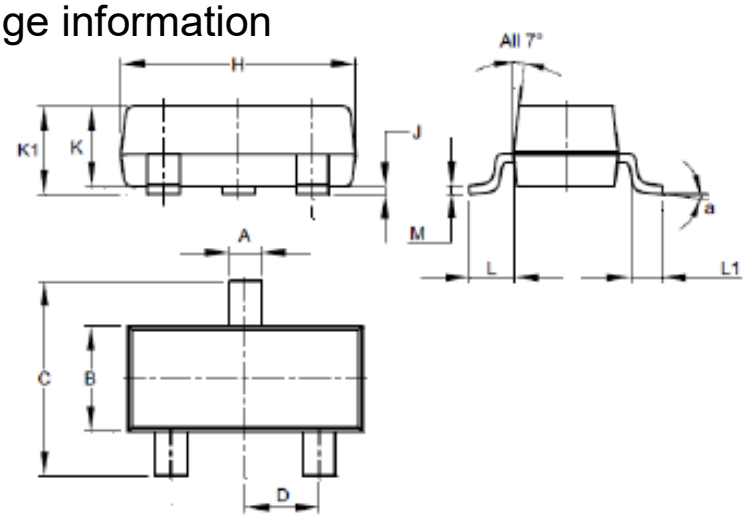
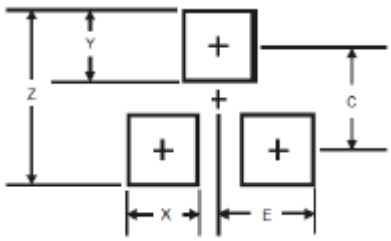
Package information



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	8°		
All Dimensions in mm			

Mounting pad



Dimensions	SOT23
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

Ordering information

Part No	FM712
Marking Code	712
Packing	7” Reel/3,000pcs

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