Innovative Service Around the Globe YAGEO

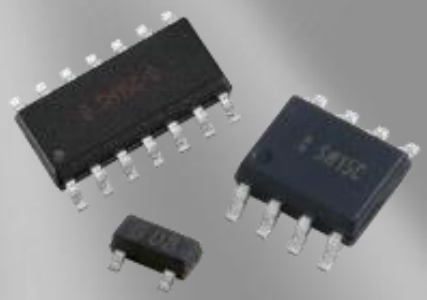
DATA SHEET

ELECTROSTATIC DISCHARGE PROTECTION DEVICES

INDUSTRIAL / CONSUMER

UAQ02C12L01

RoHS compliant & Halogen free



Product specification– July 04, 2023 V.1

Electrostatic Discharged Protection Devices (ESD) Data Sheet

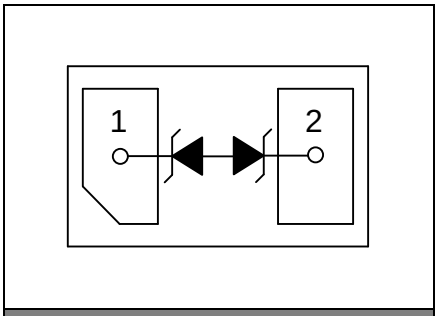
Description

The UAQ02C12L01 includes back-to-back TVS diodes fabricated in a proprietary silicon avalanche technology to provide protection for electronic equipment that may experience destructive electrostatic discharge (ESD). This robust diodes can safely absorb repetitive ESD strikes up to the maximum level specified in the IEC61000-4-2 international standard without performance degradation.
The back-to-back configuration provides symmetrical ESD protection for data lines when AC signals are present.

Contact : ±8kV
Air : ±15kV

Features

- IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- DFN0603 surface mount package
- Working voltage:12V
- Low leakage current
- Low operating and clamping voltages
- Lead Free/RoHS compliant
- Flammability rating UL 94V-0
- Meets MSL level 1, per J-STD-020
- Marking: C12



Pin Configuration

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Set Top Boxes, Game Consoles
- Smart Phones
- External Storage
- Ultrabooks, Notebooks
- Tablets, eReaders

Maximum Ratings

Rating	Symbol	Value	Unit
ESD voltage (Contact discharge)	V_{ESD}	±8	kV
ESD voltage (Air discharge)		±15	
Lead soldering temperature	T_L	260	℃
Storage & operating temperature range	T_{STG} ,T_J	-50~+150	℃

Electrical Characteristics (T_J=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				12	V
Reverse breakdown voltage	V_{BR}	I_{BR}=1.0mA	13.3			V
Reverse leakage current	I_R	V_R=12V			1.0	μA
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=3.0A		20	25	V
Peak pulse current (tp=8/20μs)	I_{PP}				3	A
ESD Clamping voltage (TLP)	V_C	I_{PP}=8.0A		20		V
ESD Clamping voltage (TLP)	V_C	I_{PP}=16A		25		V
ESD Dynamic Turn-on Resistance	R_{dy}			0.6		Ω
Off state junction capacitance	C_J	0Vdc,f=1MHz		4	5	pF

Typical Characteristics Curves

Figure 1. Pulse Waveform

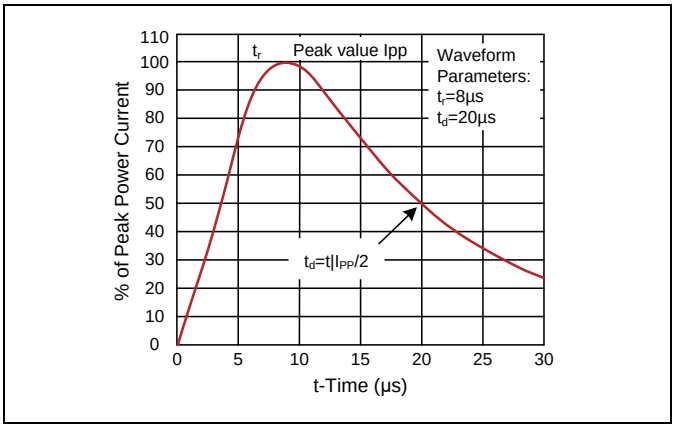


Figure 2. Clamping Voltage vs. Peak Pulse Current

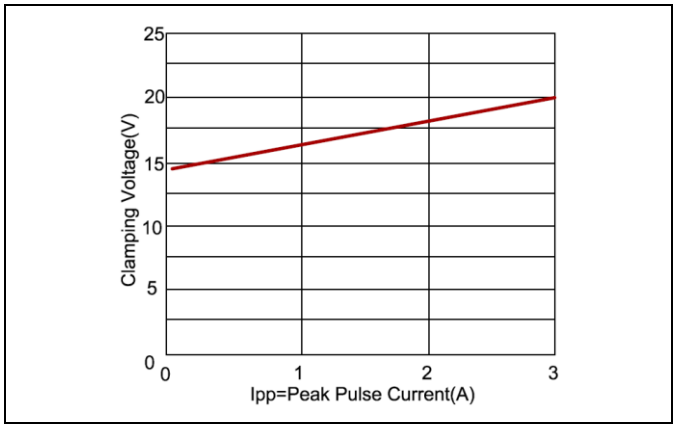


Figure 3. Capacitance vs. Reverse Voltage

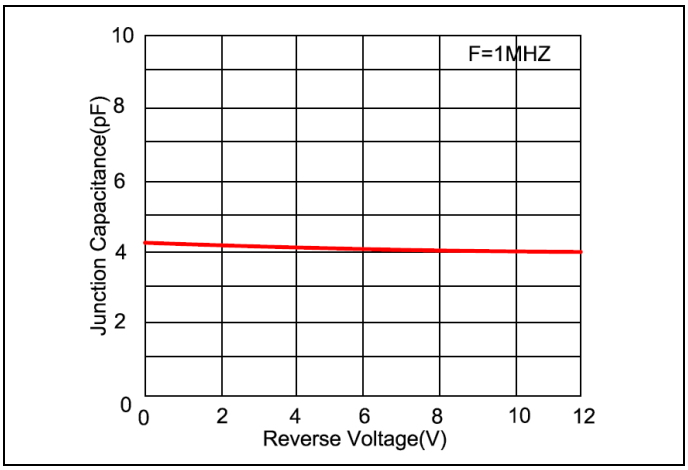
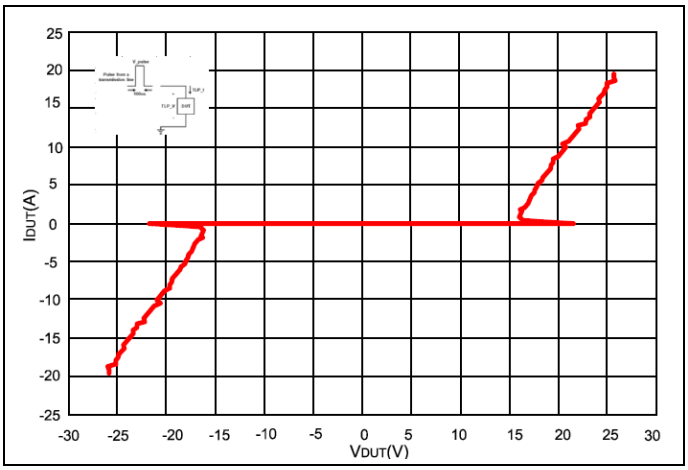
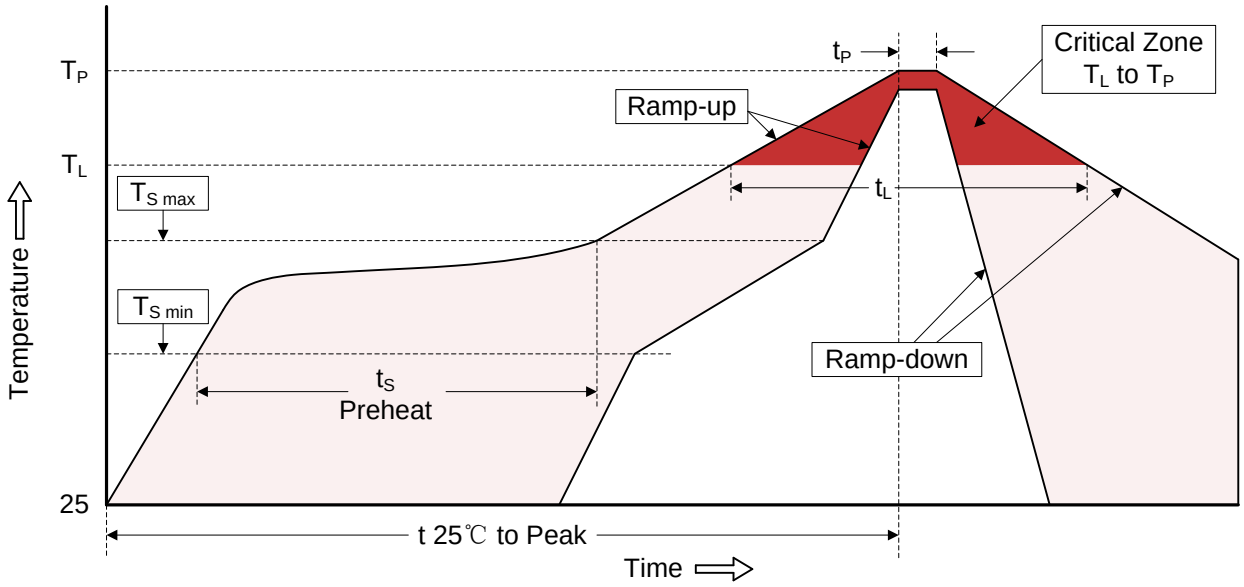


Figure4 .Transmission Line Pulsing(TLP)Measurement



Recommended Soldering Conditions

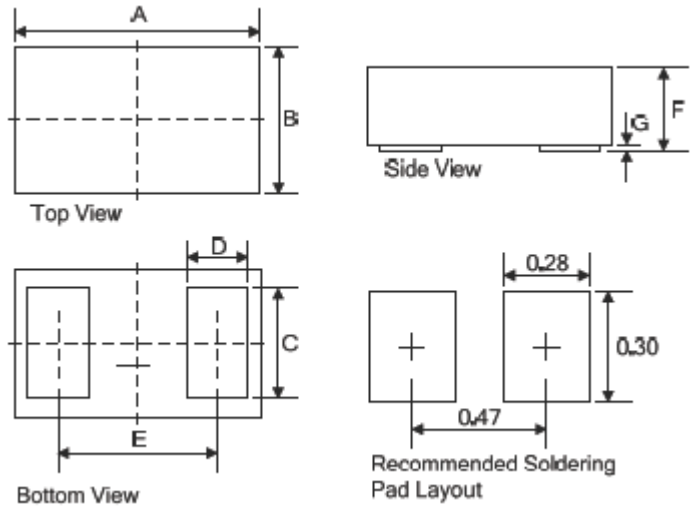
Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3℃/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_S)	 150℃ 200℃ 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	 3℃/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	 217℃ 60-150 seconds
Peak Temperature (T_P)	260℃
Time within 5℃ of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.

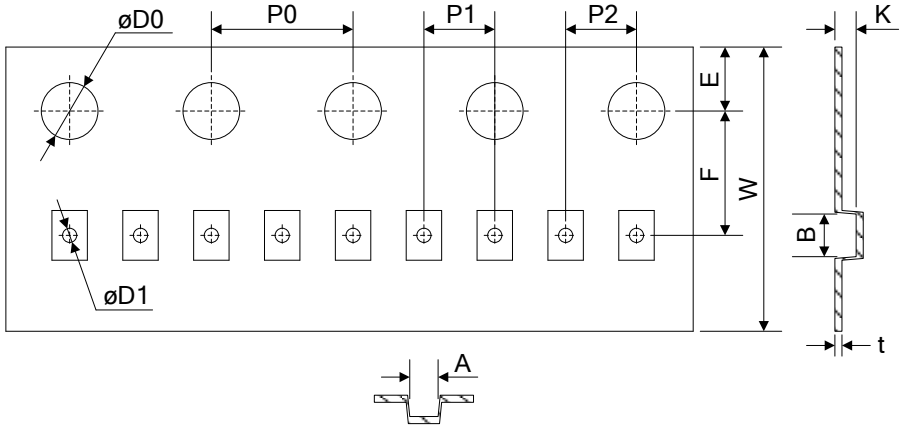
Dimensions (DFN0603/QFN-0201)



Symbol	Dimension (mm)			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.57	0.63	0.022	0.025
B	0.27	0.33	0.011	0.013
C	0.22	0.28	0.009	0.011
D	0.12	0.18	0.005	0.007
E	0.40		0.016	
F	0.24	0.30	0.009	0.012
G	-	0.01	-	0.0004

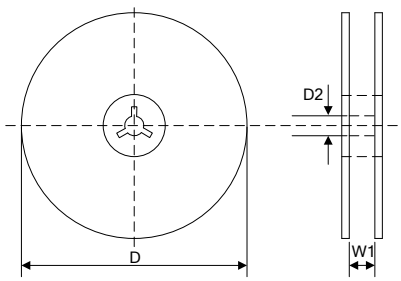
Packaging

Tape



Symbol	Dimension (mm)
W	8.00±0.30
P0	4.00±0.10
P1	2.00±0.10
P2	2.00±0.10
D0	Φ1.55±0.10
D1	Φ0.20±0.05
E	1.75±0.10
F	3.50±0.10
A	0.50±0.10
B	0.75±0.10
K	0.40±0.05
t	0.20±0.05

Reel



D	Φ178.0±2.0
D2	Φ13.00.
W1	9.50
Quantity: 10000PCS	

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