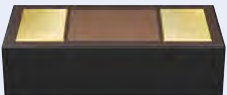


Sample Kit 2021

Transient Voltage Suppressors – TVS

High-performance TVS Diodes for ICT, Consumer
and High-speed Applications



Excellent ESD protection for portable, wearable & high-speed applications

The new micro packaged TVS diodes by TDK are designed to protect voltage sensitive components from ESD for existing and future applications in direction of general purpose and high-speed interfaces.

Excellent clamping voltage, low leakage and fast response time provides a state-of-the-art protection on applications that are exposed to ESD. Due to its ultra-slim package, they are an excellent solution for smartphones, true wireless earbuds, smart watches and many other wearable applications with tight space requirements. Ultra-low capacitance permits excellent signal integrity on demanding high-speed interfaces, such as USB 3.1, HDMI, Display Port and Thunderbolt.

Features

- Ultra-small SMD package with a thickness of 100 μm and 150 μm
- Available in chip scale packages CSP0201 and CSP01005
- High ESD resistivity up to 24 kV based on IEC61000-4-2
- Low clamping voltage down to 5.0 V ($I_{\text{clamp}} = 16 \text{ A}$, TLP)
- Low leakage current as low as 1 nA ($V_{\text{RWM}} = 3.3 \text{ V}$)
- Very low capacitance down to 0.48 pF

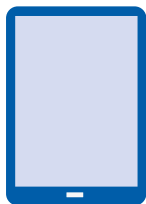
Applications

General purpose

- Smartphones
- Laptops
- Tablets
- Wearables, portable devices
- Network communication devices

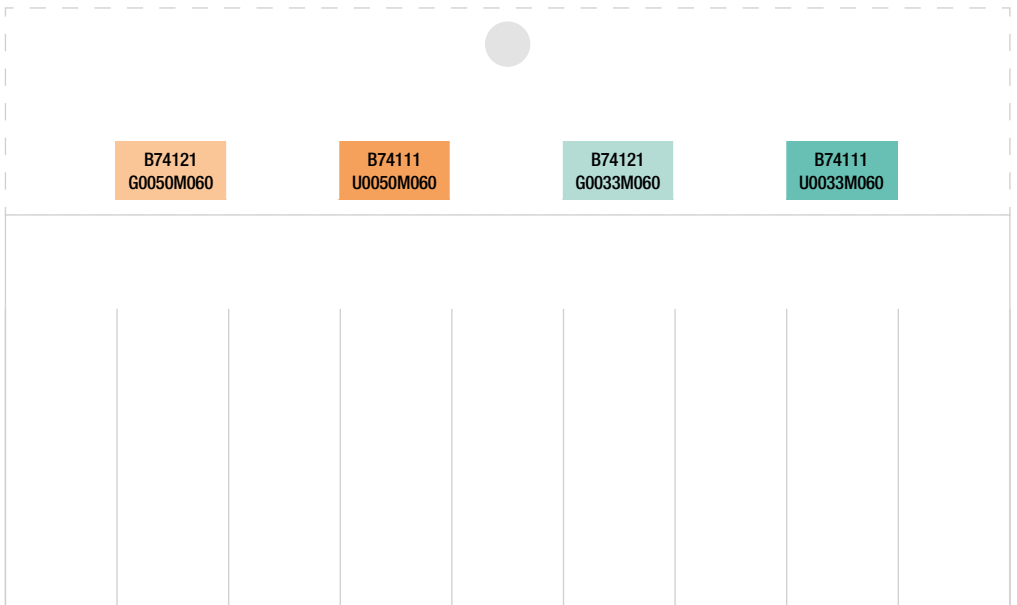
High-speed interfaces

- USB, Firewire
- DVI, HDMI, display port
- S-ATA
- Thunderbolt
- SWP/NFC

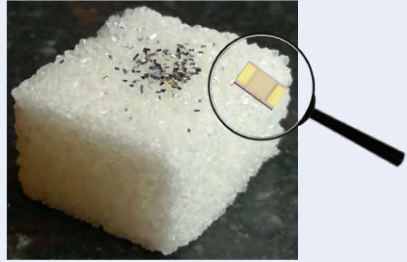
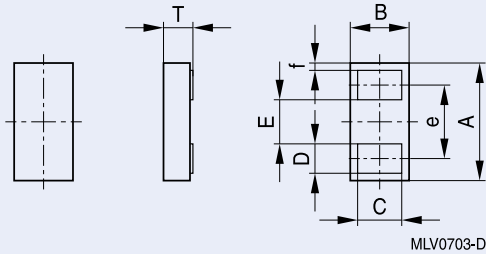


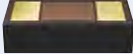
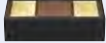
Product range

Electrical specifications and ordering codes									
$V_{RWM, max}$	$V_{BR, typ}$	$I_{leak, typ}$	$V_{clamp1, typ}$	$V_{clamp2, typ}$	$V_{ESD, max}$	$R_{dyn, typ}$	C_{typ}	$I_{PP, max}$	Ordering code Type
I/O to GND [V]	1 mA [V]	3.3 V [nA]	$I_{TLP} = 8 A$ [V]	$I_{TLP} = 16 A$ [V]	10 pulses [kV]	[Ω]	1 MHz [pF]	[A]	
General purpose applications, GP series									
5	6.8	2	7.2	8.0	24	0.10	12	8	B74121G0050M060 WL-CSP0201
5	6.8	2	7.6	8.9	15	0.16	5	4	B74111G0050M060 WL-CSP01005 SL
High-speed interface applications, ULC series									
± 3.3	5 ... 8	1	3.9	5.2	15	0.15	0.65	-	B74121U0033M060 WL-CSP0201
± 3.3	5 ... 8	1	3.8	5.0	15	0.15	0.48	-	B74111U0033M060 WL-CSP01005 SL



Dimensional drawings



				
	WL-CSP0201 SL		WL-CSP01005 SL	
	B74121G0050M060		B74111U0050M060	
	B74121G0033M060		B74111U0033M060	
Symbol	Mean	Tol.	Mean	Tol.
A	0.60	±0.025	0.40	±0.020
B	0.30	±0.025	0.20	±0.020
T	0.15	±0.010	0.10	±0.010
C	0.22	±0.020	0.15	±0.020
D	0.13	±0.020	0.10	±0.020
E	0.26	(typical)	0.15	(typical)
e	0.39	(typical)	0.25	(typical)
f	0.04	(typical)	0.025	(typical)
Footprint	600 x 300 µm		400 x 200 µm	
Thickness	150 µm		100 µm	

Dimensions in mm

Symbols and terms

C	Capacitance	R_{dyn}	Dynamic resistance
I_{leak}	Reverse leakage current	V_{BR}	Breakdown voltage
I_{PP}	Peak power current (8/20 µs)	V_{clamp}	Clamping voltage TLP
SL	Slim-line	V_{ESD}	ESD
TLP	Transmission-line pulse	V_{RWM}	Reverse working voltage

Important information: It is incumbent on the customer to check and decide whether a product is suitable for use in a particular application. Our products are described in detail in our data sheets. Our important notes and product specific Cautions and warnings must be observed. All relevant information is available through our sales offices.

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