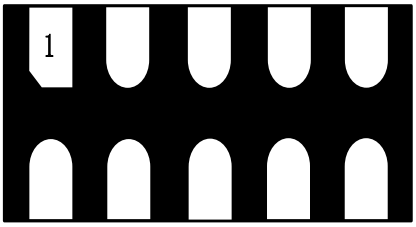
WECM5426K

ESD&CM Filter

Features

- Two Differential Channels Common-Mode EMI Filter with Integrated ESD Protection
- Large Differential Mode Bandwidth with Cutoff Frequency:4 GHz
- High Common Mode Stop Band Attenuation
- Provides ESD Protection to IEC61000−4−2 Level 4, ±20 kV Contact Discharge
- Low Channel Input Capacitance Provides Superior Impedance Matching Performance
- Low Channel Resistance: 6.0Ω
- Maximum Package Height: 0.5 mm



DFN2.6X1.35-10L

IEC COMPATIBILITY (EN61000-4)

- **IEC 61000-4-2 (ESD) ±20kV (air), ±20kV (contact)+**
- **IEC 61000-4-4 (EFT) 40A (5/50ns)**
- **IEC 61000-4-5 (Lightning) 4A (8/20μs)**

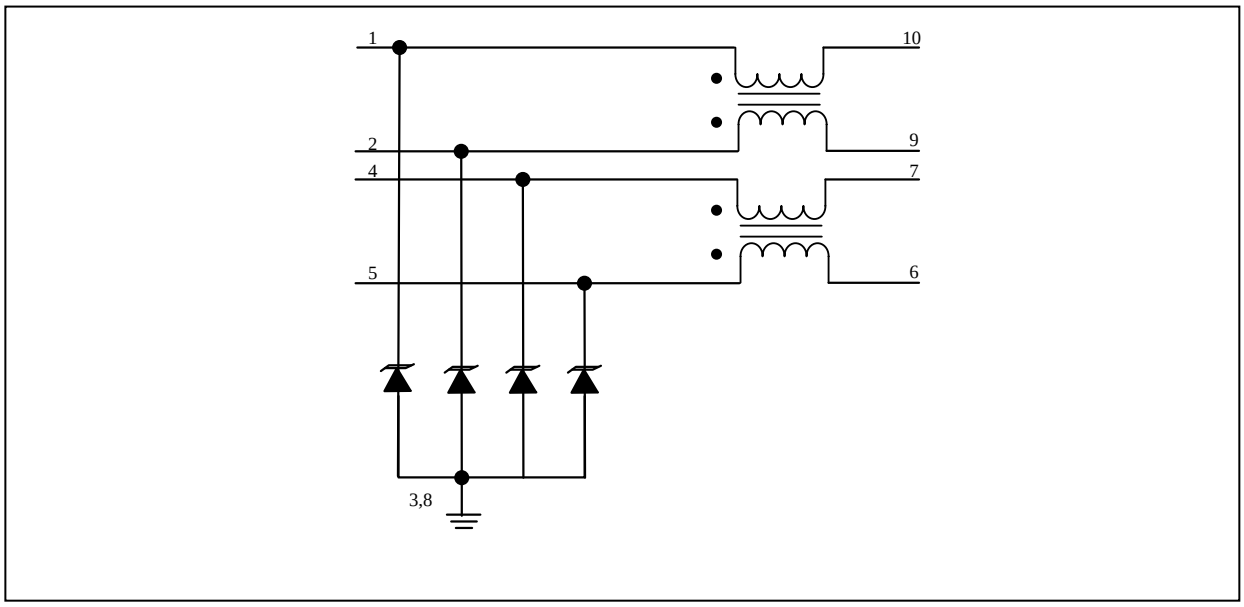
Mechanical Characteristics

- 1.35 x 2.6 mm DFN-10L package
- Pb−Free Package Marking : Marking Code
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant & HF
- Device meets MSL3 requirement

Applications

- USB 3.0
- HDMI 1.3/1.4/2.0 /DVI Display
- MIPI D−PHY/M-PHY
- eSATA, MHL

Schematic & PIN Configuration



Pin Description

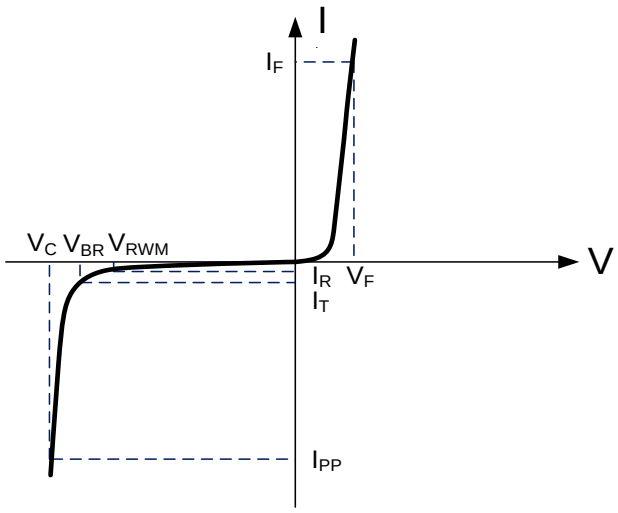
PIN number	Description	PIN number	Description
1	In_1+ (to Connector)	6	Out_2- (to IC)
2	In_1- (to Connector)	7	Out_2+ (to IC)
3	GND	8	GND
4	In_2+ (to Connector)	9	Out_1- (to IC)
5	In_2- (to Connector)	10	Out_1+ (to IC)

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (t_p = 8/20μs)	P_{PP}	48	Watts
Peak Pulse Current(t_p = 8/20μs)	I_{PP}	4	A
DC Current per Line	I_{LINE}	100	mA
Operating Temperature	T_J	-55 to + 85	℃
Storage Temperature	T_{STG}	-55 to +150	℃

Electrical Parameters (T=25℃)

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Reverse Stand-Off Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F



Electrical Characteristics

WECM5426K						
Parameter	**Symbol**	**Conditions**	**Min**	**Typ**	**Max**	**Units**
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	5.6			V
Reverse Leakage Current	I_R	V_{RWM}= 5V, T=25℃			100	nA
Forward Voltage	V_F	I_F=10mA	0.5		1.5	V
Channel Input Capacitance to Ground(Pins 1, 2, 4, 5 to Pins 3, 8)	C_{IN}	V_R = 0V, f = 1MHz		0.9	1.2	pF
Clamping Voltage	V_C	I_{PP}=4A, t_p=8/20μs		10.5	12	V
ESD Clamping Voltage[1]	V_C	I_{PP} = 4A t_p = 0.2/100ns		9.5		V
ESD Clamping Voltage[1]	V_C	I_{PP} = 16A t_p = 0.2/100ns		13.7		V
Dynamic Resistance[1,2]	R_{DYN}	TLP=0.2/100ns I/O to Gnd		0.36		Ω
Channel Resistance(Pins 1−10, 2−9, 4−7 and 5−6)	R_{CH}			6.0		Ω
Differential Mode Cut−off Frequency	f_{3dB}	50Ω Source and Load Termination		4.0		GHz
Common Mode Stop Band Attenuation	F_{atten}	@ 1GHz		23		dB

Note：

1、TLP Setting：t_p=100ns, t_r=0.2ns, I_{TLP} and V_{TLP} sample window:t_1=70ns to t_2=90ns.

2、Dynamic resistance calculated from I_{PP}=4A to I_{PP}=16A using “Best Fit”

Typical Characteristics

Figure 1: Differential attenuation versus frequency (Z0 diff = 100 Ω)

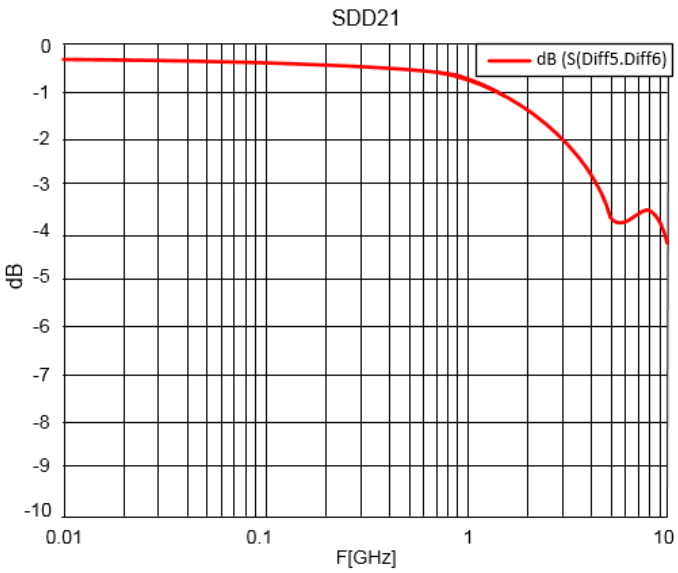


Figure 2: Common mode attenuation versus frequency (Z0 com = 50 Ω)

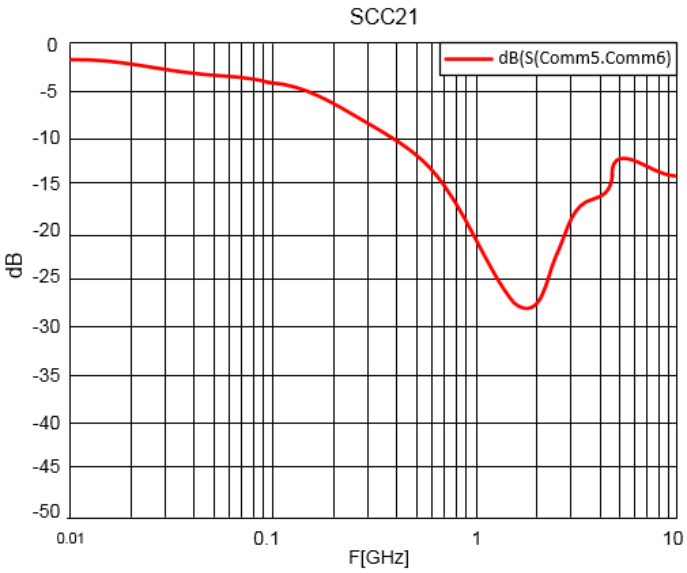


Figure 3: USB 3.0 Eye Diagram Test for 5Gbps Data Rate

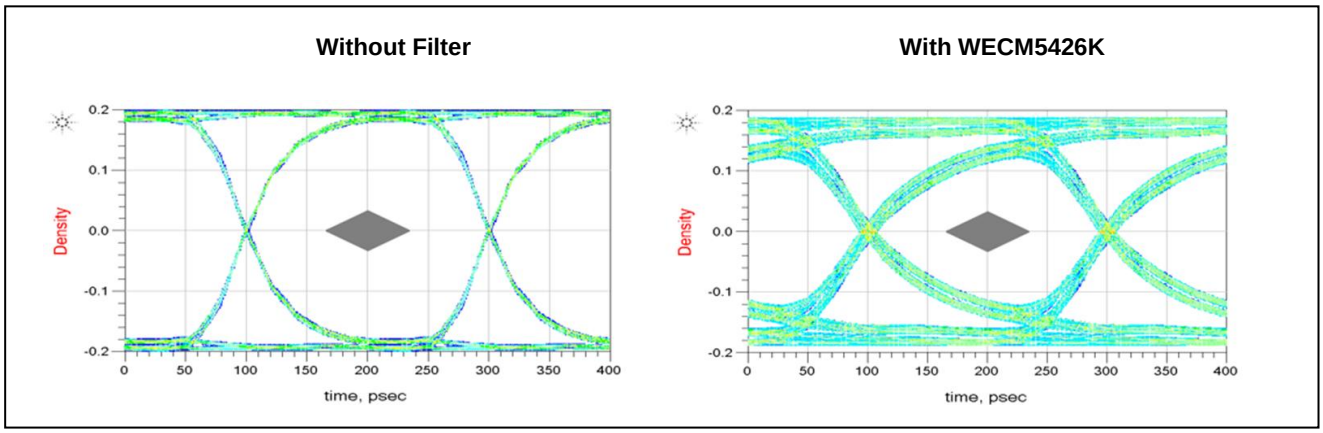


Figure 4: HDMI 2.0 Eye Diagram Test for 6Gbps Data Rate

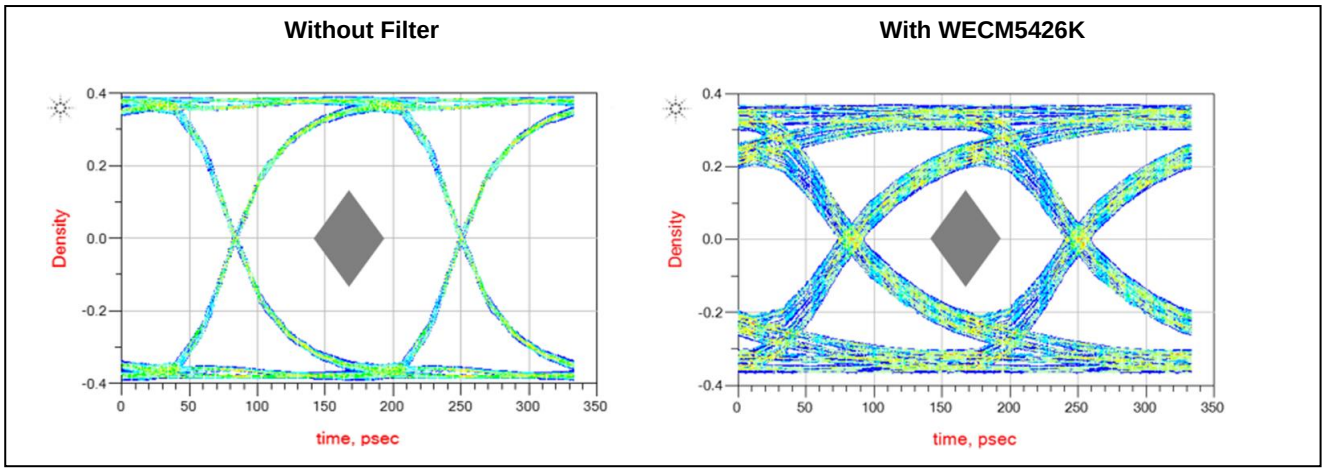


Figure 5: Peak Pulse Power vs. Pulse Time

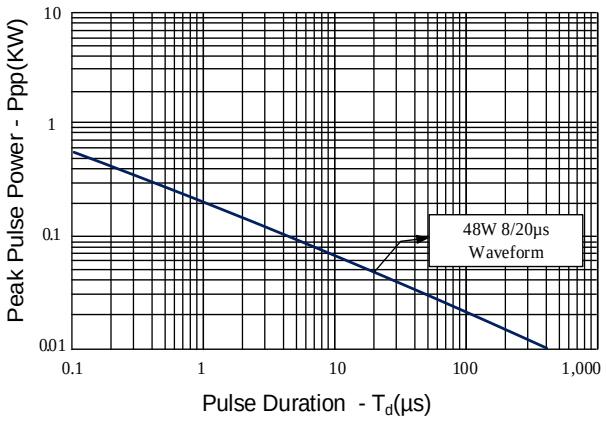


Figure 6: Power Derating Curve

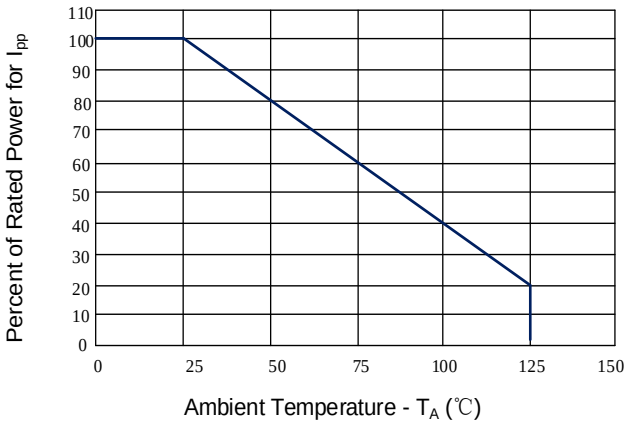


Figure 7: Pulse Waveform

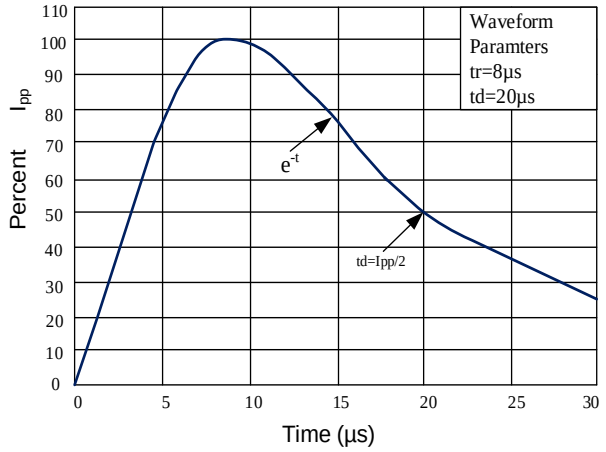


Figure 8: Clamping Voltage vs. Peak Pulse Current

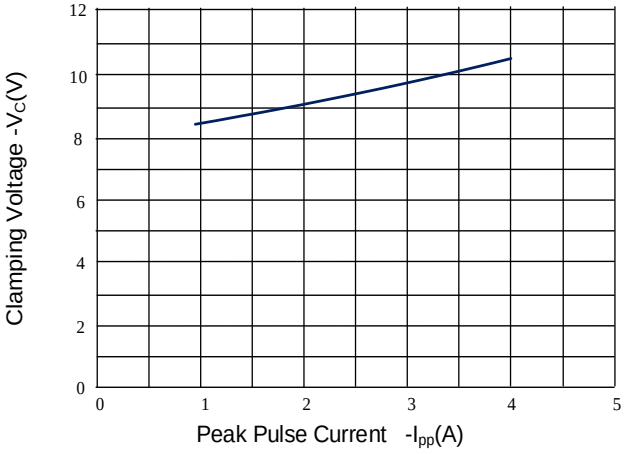


Figure 9: Capacitance vs. Reverse Voltage

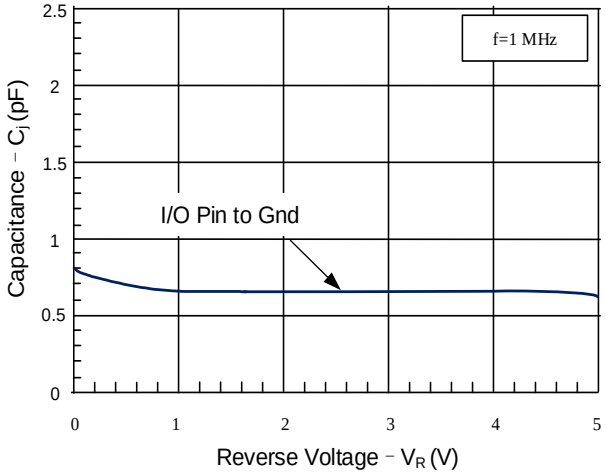
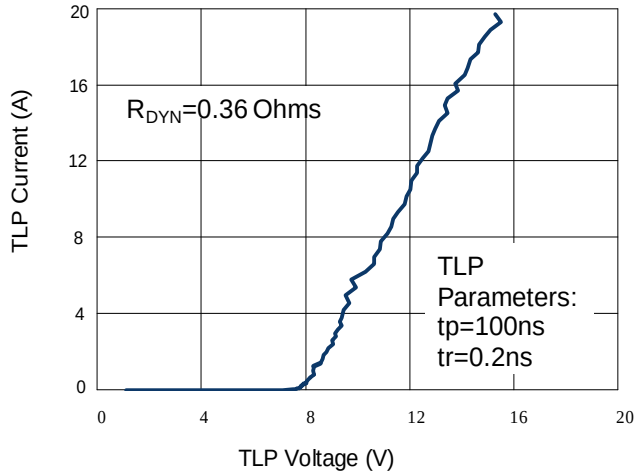
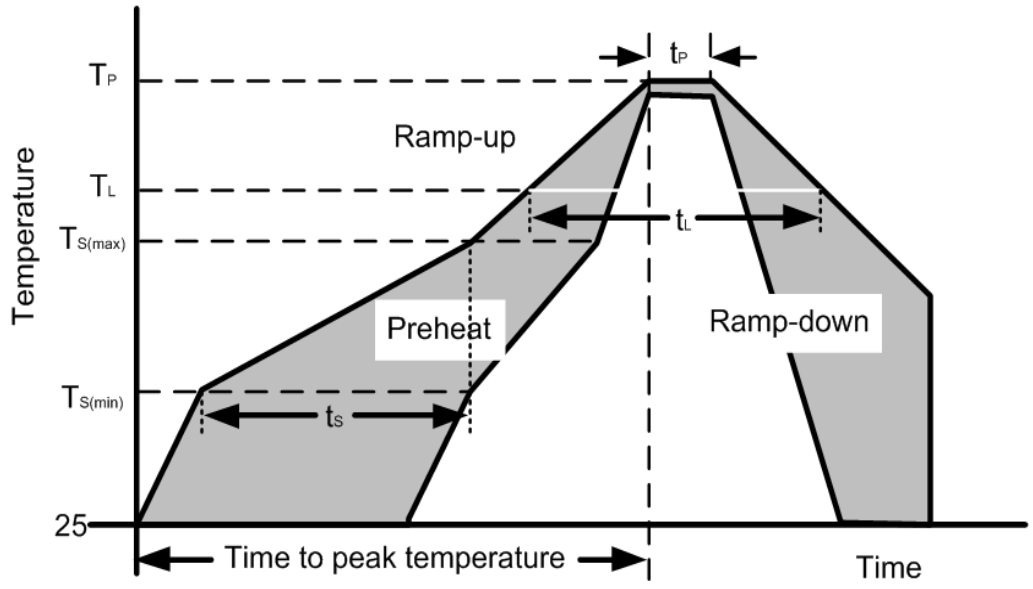


Figure 10: TLP I-V Curve



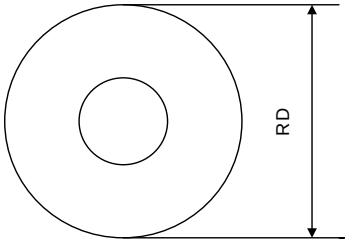
Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	Temperature Min ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (ts)	60 – 190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak		5°C/second max
$T_{S(max)}$ to T_L——Ramp-up Rate		5°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260+0/-5 °C
Time within actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C

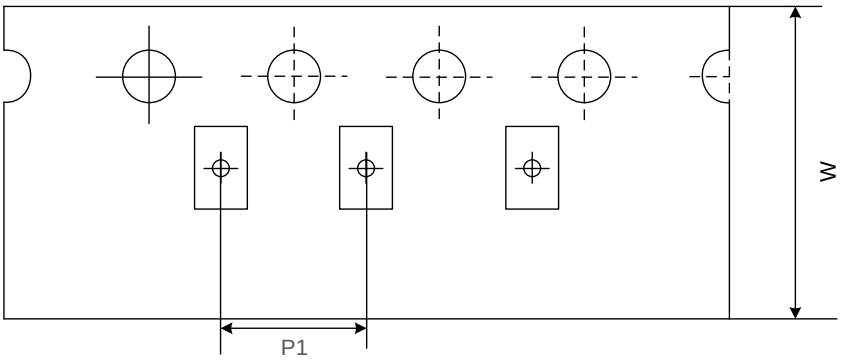


Tape And Reel Information

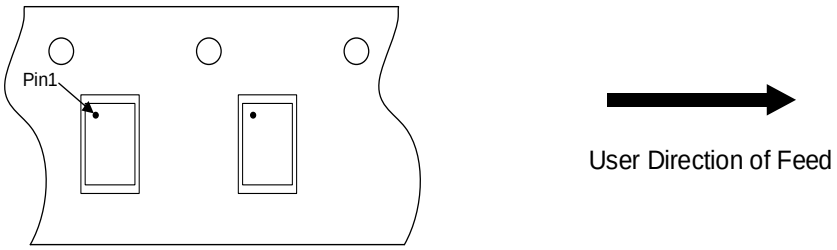
Reel Dimensions



Tape Dimensions

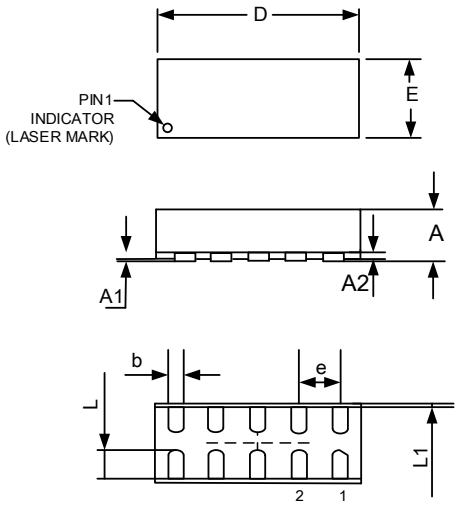


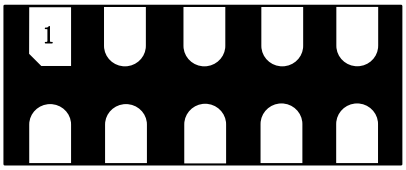
Quadrant Assignments For PIN1 Orientation In Tape



RD	Reel Dimensions	7 inch
W	Overall width of the carrier tape	8 mm
P1	Pitch between successive cavity centers	4mm

Outline Drawing –DFN-10L





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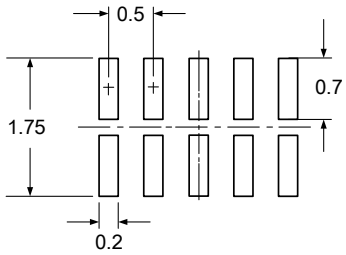
SYMBOL	MILLIMETERS		
	MIN	NOM	MAX
A	0.45	0.50	0.55
A1	-	-	0.05
A2	0.05	-	0.25
D	2.5	2.6	2.7
E	1.25	1.35	1.45
b	0.15	0.2	0.25
L	0.4	0.45	0.5
L1	0.01	0.05	0.09
e	0.50 BSC		



Footprint (dimensions in mm)

NOTES:

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).

2. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY. CONSULT YOUR MANUFACTURING TO ENSURE YOUR COMPANYS MANNUFACTURING GUIDELINES ARE MET.

Marking Codes

Part Number	WECM5426K
Marking Code	CMK XXX 1

CMK=Specific Device Code

XXX= Lot Code

Package Information

Qty：3k/Reel

CONTACT INFORMATION

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