

4-CHANNEL LOW CAPACITANCE ESD PROTECTION DIODES ARRAY

The LRC099MC-04AT1G is a 4-channel ultra low capacitance rail clam ESD protection diodes array . Each channel consists of a pair of diodes that steer positive or negative ESD current to either the positive or negative rail . A zener diode is integrated in to the array between the positive and negative supply rails. In the typical applications, the negative rail pin (assigned as GND) is connected with system ground . The Positive ESD current is steered to the ground through an ESD diode and Zener diode and the positive ESD voltage is clamped to the zener voltage. The LRC099MC-04AT1G is idea to protect high speed data lines.

● APPLICATIONS

- 1) HDMI / DVI ports
- 2) Display Port interface
- 3) 10M / 100M / 1G Ethernet
- 4) USB 2.0 interface
- 4) VGA interface
- 5) Set-top box
- 6) Flat panel Monitors / TVs
- 7) PC / Note book

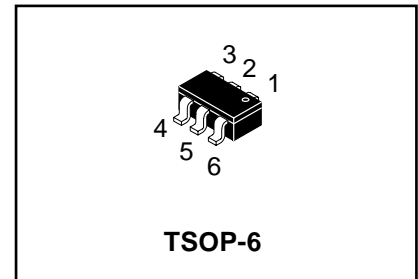
● FEATURES

- 1) 4 channels of ESD protection;
- 2) Provides ESD protection to IEC61000-4-2 level 4
 - ±15kV air discharge
 - ±8kV contact discharge;
- 3) Channel I/O to GND capacitance: 0.9pF(Max)
- 4) Channel I/O to I/O capacitance: 0.45pF(Max)
- 5) Low clamping voltage;
- 6) Low operating voltage;
- 7) Improved zener structure;
- 8) Optimized package for easy high speed data lines PCB layout;
- 9) We declare that the material of product compliant with RoHS requirements and Halogen Free.

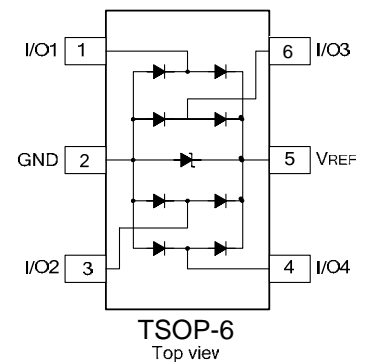
● DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LRC099MC-04AT1G	C98	3000Tape&Reel

LRC099MC-04AT1G



PIN CONFIGURATION



LRC099MC-04AT1G

● **ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Limits	Unit
Peak Pulse Power(8/20 μ s)	PPP	150	W
Peak Pulse Current(8/20 μ s)	IPP	5	A
ESD per IEC 61000-4-2(Air)	VESD1	\pm 15kV	kV
ESD per IEC 61000-4-2(Contact)	VESD2	\pm 8kV	kV
Operating Temperature Range	Topr	-55 ~ +125	$^{\circ}$ C
Storage Temperature Range	Tstg	-55 ~ +150	$^{\circ}$ C

● **ELECTRICAL CHARACTERISTICS (Ta= 25 $^{\circ}$ C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Reverse Working Voltage	VRWM	–	–	5	V	Any I/O pin to GND
Reverse Breakdown Voltage	VBR	6	–	–	V	It =1mA; Any I/O pin to GND
Reverse Leakage Current	IR	–	–	1	μ A	VRWM =5V, T=25 $^{\circ}$ C; Any I/O pin to GND
Positive Clamping Voltage	VC1	–	8.5	12	V	IPP=1A, tP=8/20 μ s; Positive pulse; Any I/O pin to GND
Negative Clamping Voltage	VC2	–	1.8	–	V	IPP=1A, tP=8/20 μ s; Negative pulse; Any I/O pin to GND
Junction Capacitance Between Channel	CJ1	–	0.35	0.45	pF	VR=0V, f=1MHz; Between I/O pins
Junction Capacitance Between I/O And GND	CJ2	–	–	0.9	pF	VR=0V, f=1MHz; Any I/O pin to GND

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ELECTRICAL CHARACTERISTIC CURVES

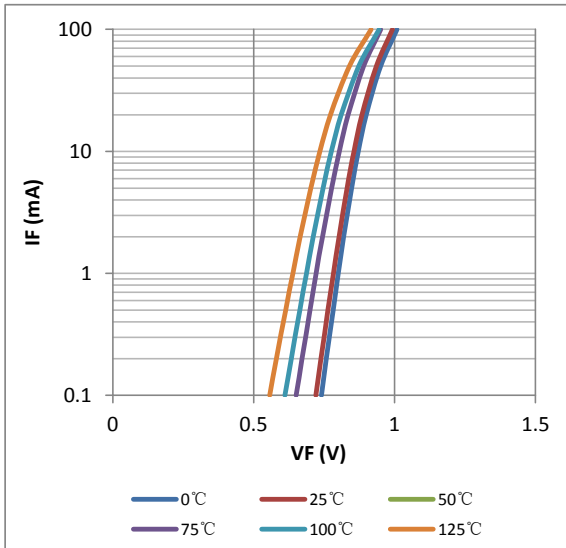


Fig 1. Forward character

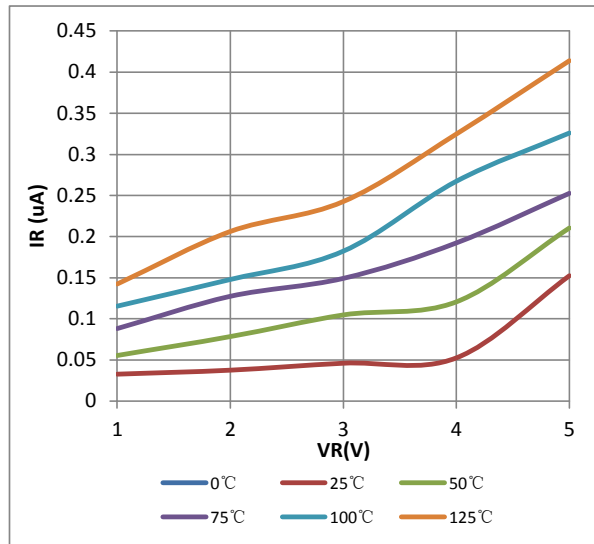


Fig 2. Reverse character

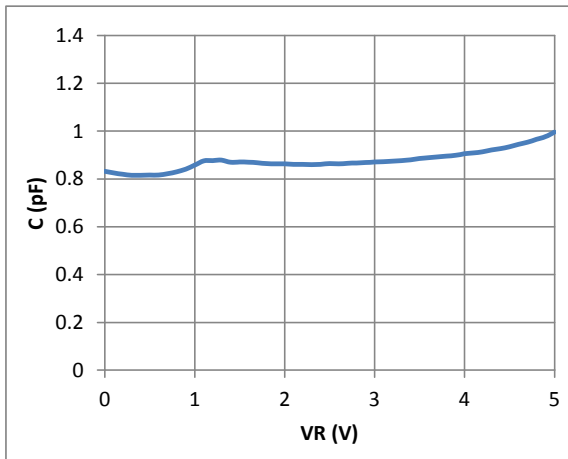
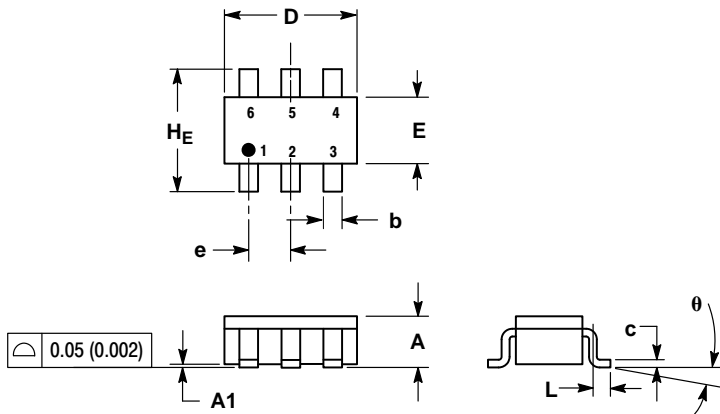


Fig 3. Capacitance character

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TSOP-6



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.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	1.00	1.10	0.035	0.039	0.043
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.25	0.38	0.50	0.010	0.014	0.020
c	0.10	0.18	0.26	0.004	0.007	0.010
D	2.90	3.00	3.10	0.114	0.118	0.122
E	1.30	1.50	1.70	0.051	0.059	0.067
e	0.85	0.95	1.05	0.034	0.037	0.041
L	0.20	0.40	0.60	0.008	0.016	0.024
HE	2.50	2.75	3.00	0.099	0.108	0.118
theta	0°	-	10°	0°	-	10°

