TDK

November 2013

Common Mode Filters

For automobile signal line

ACT series

ACT45B	**[1812 inch]* (CAN-BUS)**
ACT45R	**[1812 inch] (FlexRay)**
ACT45L	**[1812 inch] (Ethernet)**

* Dimensions Code JIS[EIA]

REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using these products.

⚠ REMINDERS

- The storage period is less than 12 months. Be sure to follow the storage conditions (Temperature: 5 to 40°C, Humidity: 10 to 75% RH or less).
  If the storage period elapses, the soldering of the terminal electrodes may deteriorate.
- Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).
- Before soldering, be sure to preheat components.
  The preheating temperature should be set so that the temperature difference between the solder temperature and chip temperature does not exceed 150°C.
- Soldering corrections after mounting should be within the range of the conditions determined in the specifications.
  If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.
- When embedding a printed circuit board where a chip is mounted to a set, be sure that residual stress is not given to the chip due to the overall distortion of the printed circuit board and partial distortion such as at screw tightening portions.
- Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.
- Carefully lay out the coil for the circuit board design of the non-magnetic shield type.
  A malfunction may occur due to magnetic interference.
- Use a wrist band to discharge static electricity in your body through the grounding wire.
- Do not expose the products to magnets or magnetic fields.
- Do not use for a purpose outside of the contents regulated in the delivery specifications.
- The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.
  The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.
  If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each catalog, please contact us.

(1) Aerospace/Aviation equipment
(2) Transportation equipment (electric trains, ships, etc.)
(3) Medical equipment
(4) Power-generation control equipment
(5) Atomic energy-related equipment
(6) Seabed equipment
(7) Transportation control equipment
(8) Public information-processing equipment
(9) Military equipment
(10) Electric heating apparatus, burning equipment
(11) Disaster prevention/crime prevention equipment
(12) Safety equipment
(13) Other applications that are not considered general-purpose applications

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.

Common Mode Filters

For automobile signal line

Product compatible with RoHS directive
Compatible with lead-free solders
AEC-Q200

Overview of the ACT Series

FEATURES

- Compatible with an operating temperature range of –40 to +150°C, so can be used for vehicle devices requiring compatibility with high temperatures. (ACT45B, ACT45R)
- When mounting, the terminal and winding tape splicing part do not fuse.
- ACT45R for FlexRay, which uses our unique technology, is a product that can achieve DCR < 2Ω @ 125 deg. C by reducing the DC resistance while maintaining a high L-value of 100μH.
- ACT45L for Ethernet, which uses our unique technology, is a product that can realize higher-level Scd21 mode conversion characteristics while maintaining a high L-value of 200μH.

APPLICATION

ACT45B

- CAN-BUS, FAXs, modems, ISDNs, etc.

ACT45R

- FlexRay system.

ACT45L

- Ethernet system.

PART NUMBER CONSTRUCTION

ACT45B - 510 - 2P - TL □□□

Series name
ACT45B
ACT45R
ACT45L

Inductance(typ.) (μH)	
110	11
220	22
510	51
101	100
201	200

Number of lines	
2P	2 lines

Packaging style	
TL	ø330mm reel

Internal code

OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

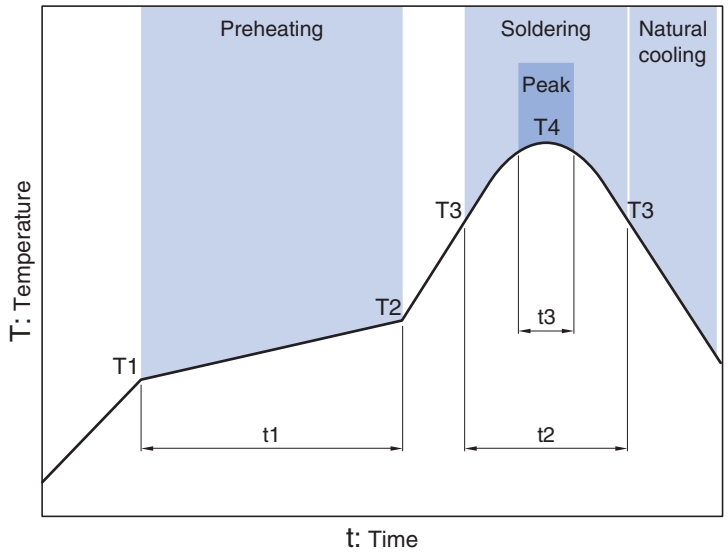
Type	Temperature range		Package quantity	Individual weight
	Operating temperature	Storage temperature*		
	(°C)	(°C)	(pieces/reel)	(g)
ACT45B	–40 to +150	–40 to +150	2,500	0.14
ACT45R	–40 to +150	–40 to +150	2,500	0.14
ACT45L	–40 to +105	–40 to +105	2,500	0.2

* The Storage temperature range is for after the circuit board is mounted.

○RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. http://www.tdk.co.jp/rohs/

Overview of the ACT Series

RECOMMENDED REFLOW PROFILE

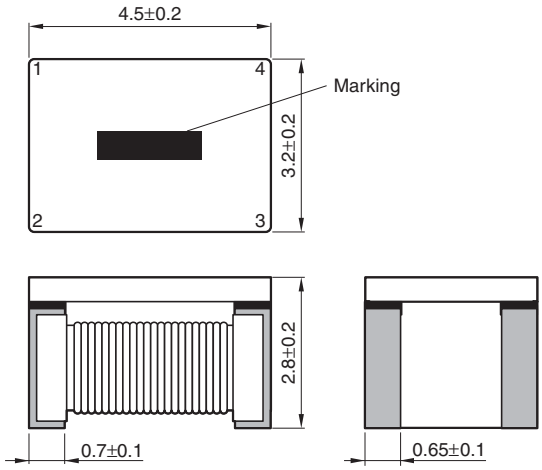


Preheating			Soldering		Peak	
Temp.		Time	Temp.	Time	Temp.	Time
T1	T2	t1	T3	t2	T4	t3
150°C	180°C	60 to 120s	230°C	40s max.	245°C	5s

ACT series

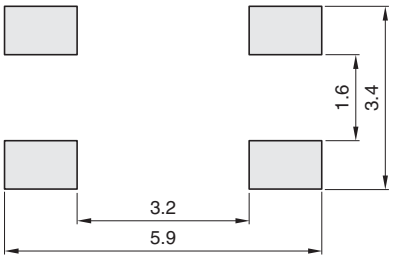
ACT45B Type

SHAPE & DIMENSIONS



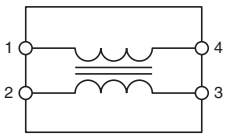
Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

CIRCUIT DIAGRAM



• No polarity

ACT series ACT45B Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

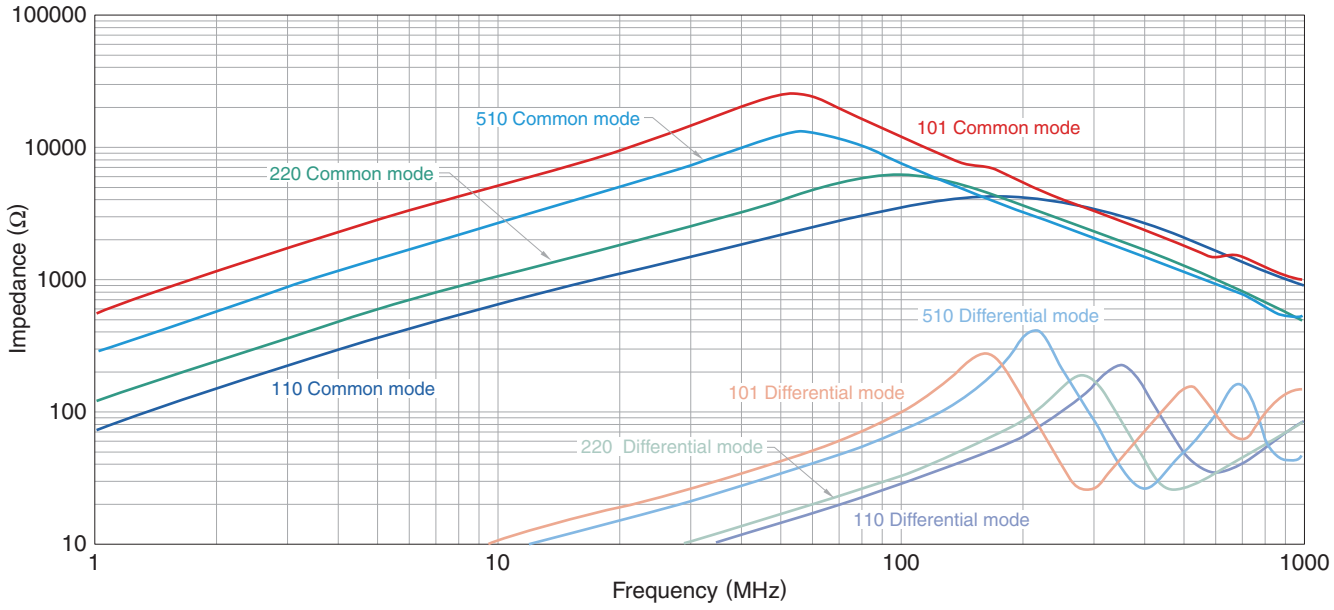
Common mode impedance (Ω) [10MHz] min.	typ.	Common mode inductance(μH) +50/–30% [100kHz]	Stray inductance (μH)typ. [100kHz]	DC resistance (Ω)max.	Rated current (A)max.	Insulation resistance (MΩ)min.	Rated voltage (V)max.	Part No.
300	600	11	0.05	0.6	0.25	10	50	ACT45B-110-2PTL□□□
500	1200	22	0.08	1.0	0.2	10	50	ACT45B-220-2PTL□□□
1000	2800	51	0.15	1.0	0.2	10	50	ACT45B-510-2PTL□□□
2000	5800	100	0.20	2.0	0.15	10	50	ACT45B-101-2PTL□□□

○ Measurement equipment

Measurement item	Product No.	Manufacturer
Common mode impedance	4991A	Agilent Technologies
Common mode inductance	4294A	Agilent Technologies
DC resistance	4338A	Agilent Technologies
Insulation resistance	4339A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

□IMPEDANCE VS. FREQUENCY CHARACTERISTICS



○ Measurement equipment

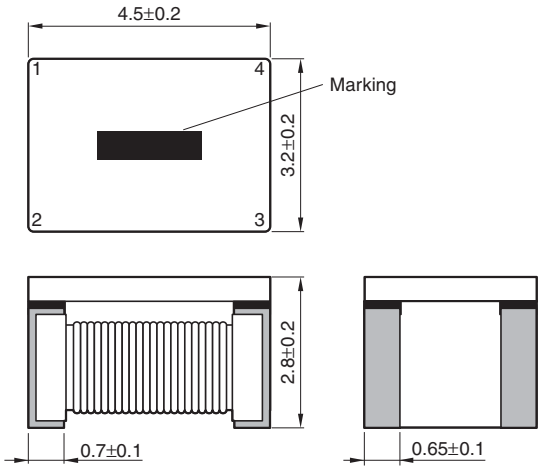
Product No.	Manufacturer
4991A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

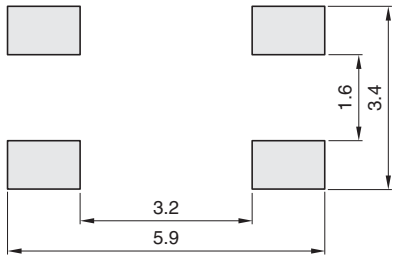
ACT series

ACT45R Type

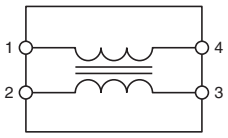
SHAPE & DIMENSIONS



RECOMMENDED LAND PATTERN



CIRCUIT DIAGRAM



• No polarity

ACT series ACT45R Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

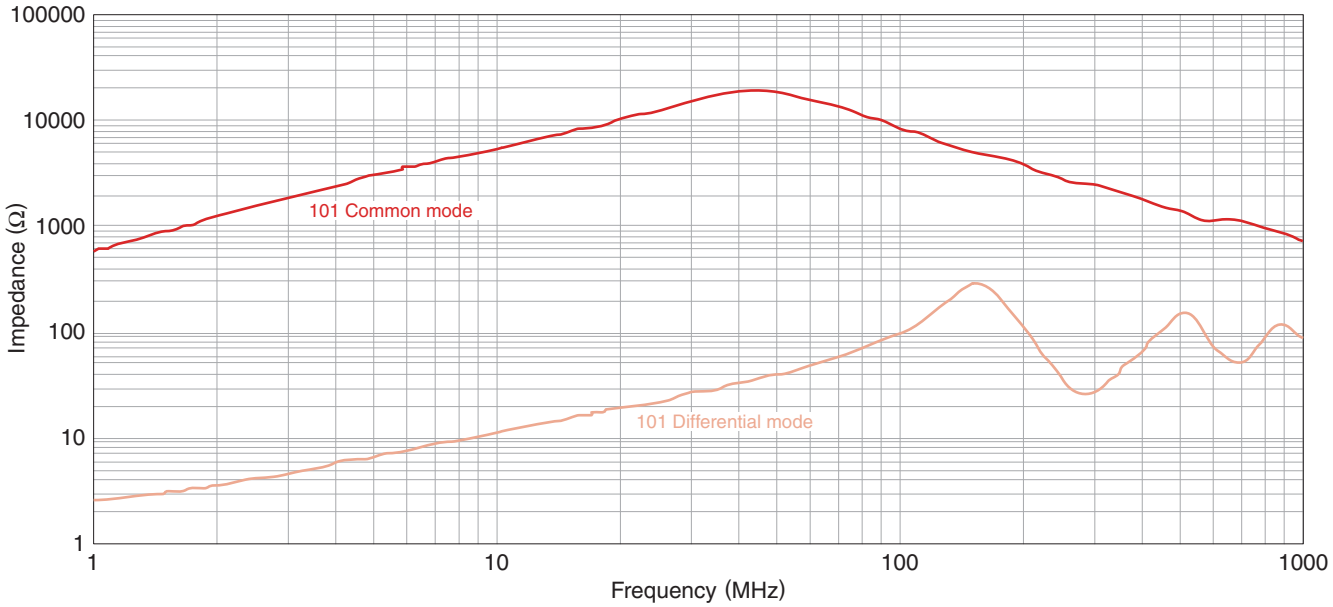
Common mode impedance (Ω) [10MHz]		Common mode inductance(μH) +50/–30% [100kHz]	Stray inductance (μH)typ. [100kHz]	DC resistance (Ω)max.	Rated current (A)max.	Insulation resistance (MΩ)min.	Rated voltage (V)max.	Part No.
min.	typ.							
2200	5500	100	0.2	1.5	0.2	10	50	ACT45R-101-2P-TL001

○ Measurement equipment

Measurement item	Product No.	Manufacturer
Common mode impedance	4991A	Agilent Technologies
Common mode inductance	4294A	Agilent Technologies
DC resistance	4338A	Agilent Technologies
Insulation resistance	4339A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

□IMPEDANCE VS. FREQUENCY CHARACTERISTICS



○ Measurement equipment

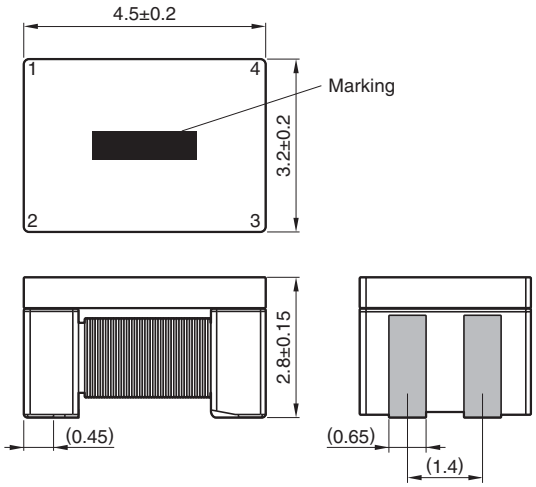
Product No.	Manufacturer
4991A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

ACT series

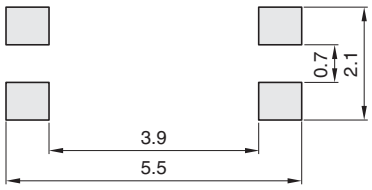
ACT45L Type

SHAPE & DIMENSIONS



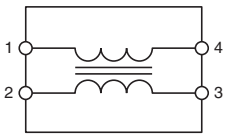
Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

CIRCUIT DIAGRAM



• No polarity

ACT series ACT45L Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

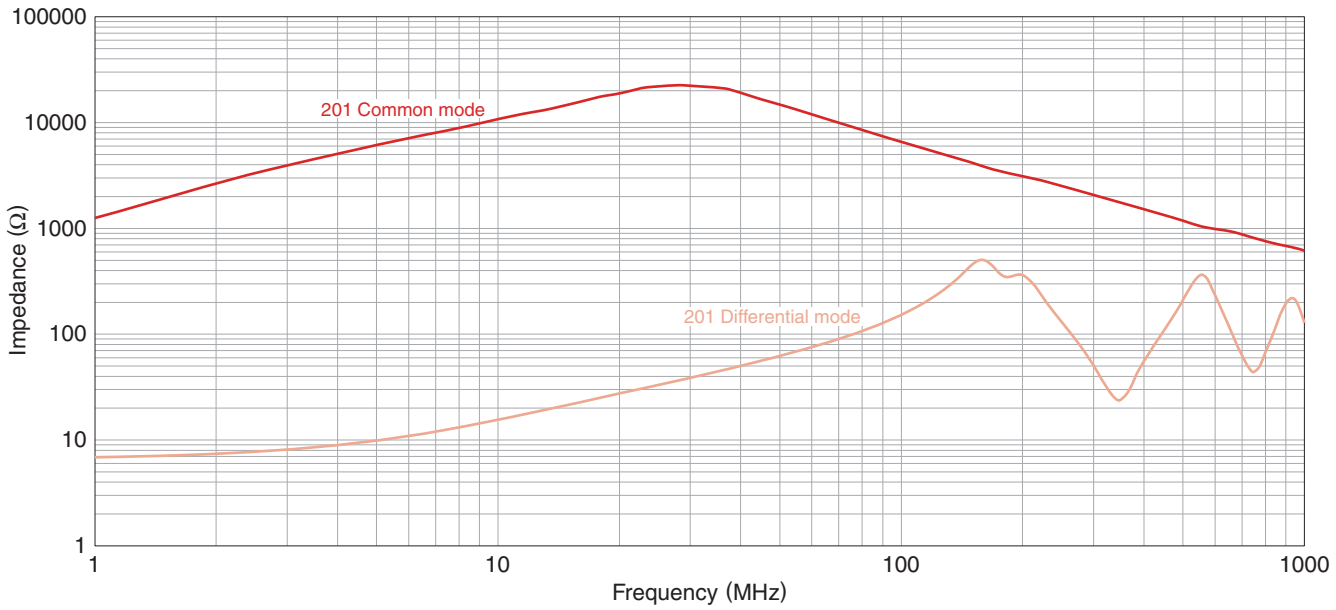
Common mode inductance (μH)typ. [100kHz]	DC resistance (Ω)max.	Rated current (mA)max.	Insulation resistance (MΩ)min.	Rated voltage (V)max.	Part No.
200	4.5	100	10	50	ACT45L-201-2P-TL000

○ Measurement equipment

Measurement item	Product No.	Manufacturer
Common mode inductance	4294A	Agilent Technologies
DC resistance	4338A	Agilent Technologies
Insulation resistance	4339A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

□IMPEDANCE VS. FREQUENCY CHARACTERISTICS



○ Measurement equipment

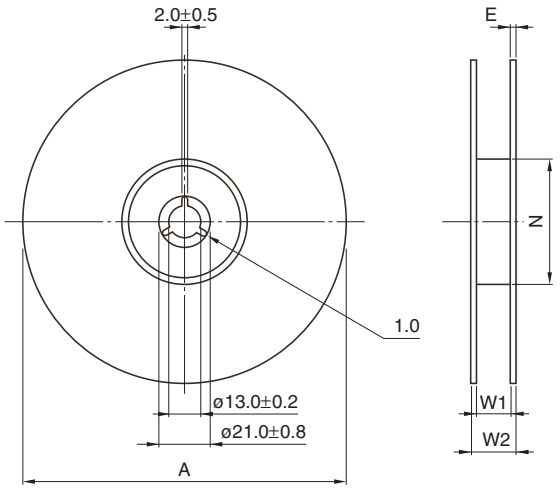
Product No.	Manufacturer
4294A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

ACT series

Packaging style

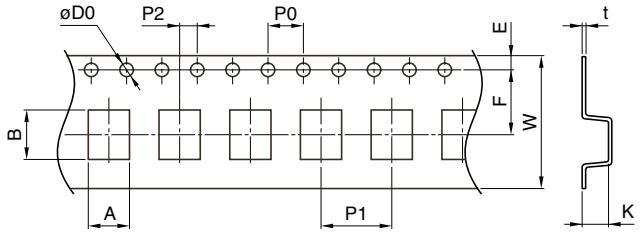
REEL DIMENSIONS



Type	A	W1	W2	N	E
ACT45B	ø330±2	13.5±0.5	17.5±1	100±1	2 typ.
ACT45R	ø330±2	13.5±0.5	17.5±1	100±1	2 typ.
ACT45L	ø330±2	13.5±0.5	17.5±1	100±1	2 typ.

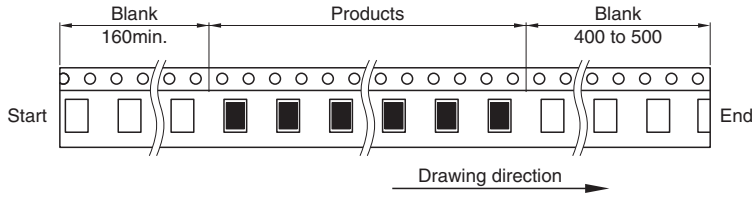
Dimensions in mm

TAPE DIMENSIONS



Dimensions in mm

Type	A	B	øD0	E	F	P0	P1	P2	W	K	t
ACT45B	3.6±0.1	4.9±0.1	1.55±0.05	1.75±0.1	5.5±0.05	4.0±0.1	8.0±0.1	2.0±0.05	12.0±0.2	3.05±0.1	0.3±0.05
ACT45R	3.6±0.1	4.9±0.1	1.55±0.05	1.75±0.1	5.5±0.05	4.0±0.1	8.0±0.1	2.0±0.05	12.0±0.2	3.05±0.1	0.3±0.05
ACT45L	3.6±0.1	4.9±0.1	1.55±0.05	1.75±0.1	5.5±0.05	4.0±0.1	8.0±0.1	2.0±0.05	12.0±0.2	3.05±0.1	0.3±0.05



Dimensions in mm

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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