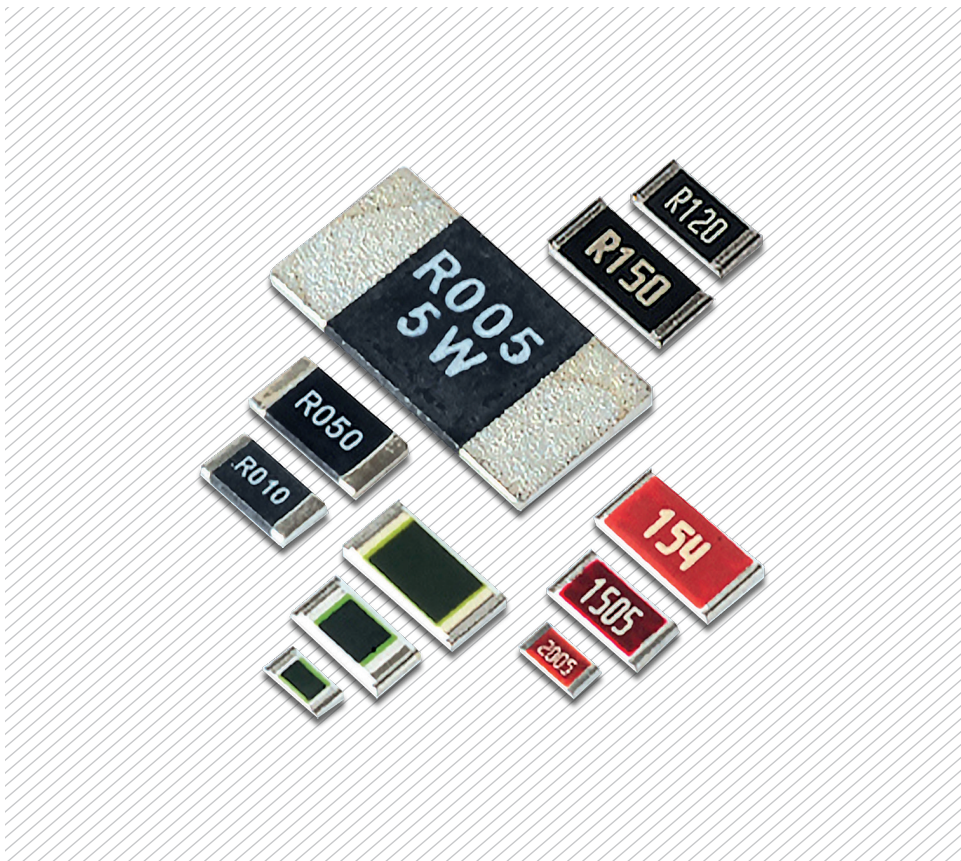


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OUR PRODUCT OF THE MONTH: SURGE RESISTORS WITH DOUBLE AND TRIPLE POWER RATING – FPS SERIES



FEATURES DOUBLE POWER RATING

- High power rating to 2 W and compact size
- High reliability and high precision (1 %)
- Suitable for withstanding surge voltage
- Suitable for lead free soldering
- Meet AEC-Q200, RoHS compliant & halogen free

FEATURES TRIPLE POWER RATING

- High power rating to 0.75 W of 1206 size
- High reliability and high precision
- Surge performance superior than general thick-film resistors
- Suitable for lead free soldering
- Meet AEC-Q200, RoHS compliant & halogen free

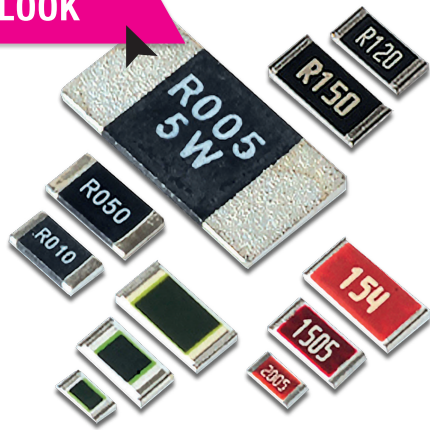


SURGE RESISTORS WITH DOUBLE AND TRIPLE POWER RATING – FPS SERIES

UPGRADE HYBRID CONDUCTIVE POLYMER CAPACITOR – FVF SERIES

HAVE A LOOK

HAVE A LOOK



Prosperity Dielectrics Co. Ltd (PDC) has enhanced their popular „high power & anti-surge“ series FPS to double power rating for the sizes 0603 (1/8 W) to 2512 (2W) and triple power rating for the sizes 0603 (1/3 W) to 1206 (3/4 W).

FEATURES DOUBLE POWER RATING

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FEATURES TRIPLE POWER RATING

- High power rating to 0.75 W of 1206 size
- High reliability and high precision
- Surge performance superior than general thick-film resistors
- Suitable for lead free soldering
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The higher power rating is achieved by PDC's unique double layer technology. An optimised trimming process as well as a special ceramic substrate ensures best stability even at triple power mode.

APPLICATIONS

- LED lighting
- Power supply
- Automotive industry
- Digital meter, consumer electronics, M/B
- Industry control board

TYPE	SIZE	DOUBLE POWER RATING AT 70 °C	TRIPLE POWER RATING AT 70 °C	RESISTANCE TOLERANCE DOUBLE POWER RATING	RESISTANCE TOLERANCE TRIPLE POWER RATING	TEMPERATURE COEFFICIENT	RESISTANCE RANGE MIN-MAX
FPS03	0603	1/8 W	1/3 W	±1 % (F)	±0.5 % (D) / ±1 % (F)	±100 ppm	10 Ω – 1 MΩ
				±1 % (F)	±0.5 % (D) / ±1 % (F)	±200 ppm	1 Ω – 9.76 Ω
				±5 % (J)	±5 % (J)	±200 ppm	1 Ω – 1 MΩ
FPS05	0805	1/4 W	1/2 W	±1 % (F)	±0.5 % (D) / ±1 % (F)	±100 ppm	10 Ω – 1 MΩ
				±1 % (F)	±0.5 % (D) / ±1 % (F)	±150 ppm	1 Ω – 9.76 Ω
				±5 % (J)	±5 % (J)	±200 ppm	1 Ω – 1 MΩ
FPS06	1206	1/2 W	3/4 W	±1 % (F)	±0.5 % (D) / ±1 % (F)	±100 ppm	1 Ω – 1 MΩ
				±5 % (J)	–	±200 ppm	1 Ω – 1 MΩ
FPS12	1210	1/2 W	–	±1 % (F)	–	±100 ppm	1 Ω – 1 MΩ
				±5 % (J)	–	±200 ppm	1 Ω – 1 MΩ
FPS20	2010	1 W	–	±1 % (F)	–	±100 ppm	1 Ω – 1 MΩ
				±5 % (J)	–	±200 ppm	1 Ω – 1 MΩ
FPS25	2512	2 W	–	±1 % (F)	–	±100 ppm	1 Ω – 1 MΩ
				±5 % (J)	–	±200 ppm	1 Ω – 1 MΩ

This series from Sun Electronic Industries Corp. is characterized by the fact for a universal application from 125 °C up to 150 °C ambient temperature with adapted ripple current.

FEATURES

- 125 °C to 150 °C, 4,000 hours
- Solvent proof (within 2 minutes)
- AEC-Q200

APPLICATIONS

- 48 V DC/DC application for automotive
- 24 V power supply for industry application
- Application for voltage transformer in wind/solar energy



ITEMS	VOLTAGE	35 V					63 V				
		CASE SIZE Ø D x L	ESR (mΩmax.) (20 °C / 100kHz)	RATED RIPPLE CURRENT (mArms/100kHz)			CASE SIZE Ø D x L	ESR (mΩmax.) (20 °C / 100kHz)	RATED RIPPLE CURRENT (mArms/100kHz)		
				125 °C	135 °C	150 °C			125 °C	135 °C	150 °C
47 µF	–	–	–	–	–	8.0 x 10.5 mm	40	2700	1900	1000	
56 µF	–	–	–	–	–	8.0 x 10.5 mm	40	2700	1900	1000	
68 µF	–	6.3 x 7.7 mm	35	2700	1800	–	–	–	–	–	
82 µF	–	–	–	–	–	10.0 x 10.5 mm	30	3400	2400	1250	
100 µF	–	–	–	–	–	10.0 x 10.5 mm	30 (S Type)	3400	2400	1250	
100 µF	–	–	–	–	–	10.0 x 12.5 mm	22	3700	2600	1450	
120 µF	–	–	–	–	–	10.0 x 12.5 mm	22 (S Type)	3700	2600	1450	
120 µF	–	–	–	–	–	10.0 x 13.8 mm	20	4100	2800	1700	
150 µF	–	8.0 x 10.5 mm	20	3500	2500	1200	10.0 x 13.8 mm	20 (S Type)	4100	2800	1700
150 µF	–	–	–	–	–	–	10.0 x 16.5 mm	15	4900	3500	2000
180 µF	–	–	–	–	–	–	10.0 x 16.5 mm	15	4900	3500	2000
270 µF	–	10.0 x 10.5 mm	18	4000	3100	1600	–	–	–	–	
330 µF	–	10.0 x 12.5 mm	14	4700	3400	1800	–	–	–	–	
360 µF	–	10.0 x 13.8 mm	13	5200	3700	2000	–	–	–	–	
470 µF	–	10.0 x 16.5 mm	11	5700	4100	2250	–	–	–	–	

RADAR SENSORS – CONTACTLESS SWITCHING MADE EASY

HAVE A LOOK

Due to the ongoing Corona pandemic, people have become more aware of potential infection risks and are more attentive to hygiene than in the past. Washing and disinfecting hands has become part of daily life, so it is not surprising that people are reluctant to touch equipment controls, especially in publicly accessible systems and equipment.

Manufacturers of door controls, vending machines, information kiosks or even traffic light controls have realized this and are developing new non-contact switching and triggering devices. The technologies that can be used vary depending on the purpose. If one wants to detect the approach or the movement in front of the device, PIR (Passive Infra Red), ultrasonic, optical and radar sensors come into consideration.

With the exception of radar sensors, all of the above sensors require direct visual contact with the approaching object. Ultrasonic sensors use air as a medium, PIR sensors detect temperature changes, and optical systems such as ToF sensors use light as a medium, which means that visual contact with the object is mandatory.

This means that there are limits to the design of the systems. There must always be an opening in the front panel so that the sensor can make a detection. Mostly you find a white Fresnel lens (PIR), a red cover (ToF) or a simple opening at the ultrasonic sensors - for many use cases a rather suboptimal and not very attractive design.

The situation is completely different for radar sensors, since a microwave signal is used for which non-metallic materials do not represent an obstacle. This "hidden mounting" opens up new design possibilities for the system design and the detection is usually not even noticed.

Nisshinbo Micro Devices Inc. (formerly New Japan Radio) offers radar sensor modules for industrial use. Starting with the simple



Doppler module for proximity detection up to advanced modules that can detect multiple moving and stationary objects and determine their distance in meters in front of the sensor.

Doppler modules are ideal for the "contactless switching" application due to their compactness and performance.

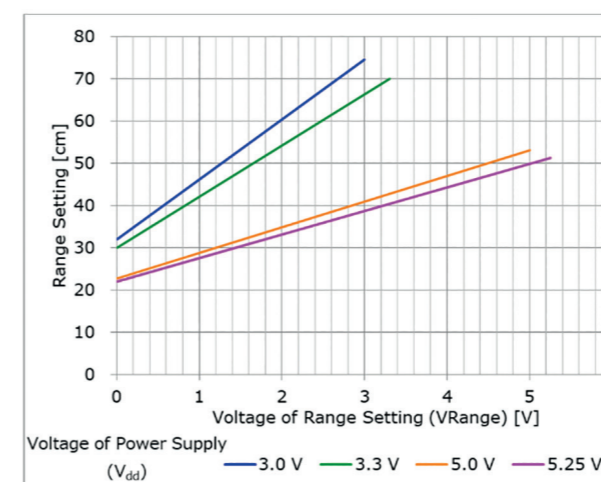
RADAR SENSORS – CONTACTLESS SWITCHING MADE EASY

Nisshinbo Micro Devices Inc. (formerly New Japan Radio) has developed the NJR4266F2A3 especially for such kind of applications, which has been optimized for use at short distances from 20 cm up to a maximum of 80 cm.

In addition to the complete RF and analog processing, the module also contains MCU-based signal processing and the required power supply.

The algorithm used has been optimized so that a digital switching signal is generated at the output in response to a movement such as approach or a wave of the hand. The detection distance can be set by means of an analog voltage at the "Analog Range Setting" pin.

External MCU is not necessarily required for operation, since the digital switching output can control e.g. a relay by means of retriggerable analog timer.



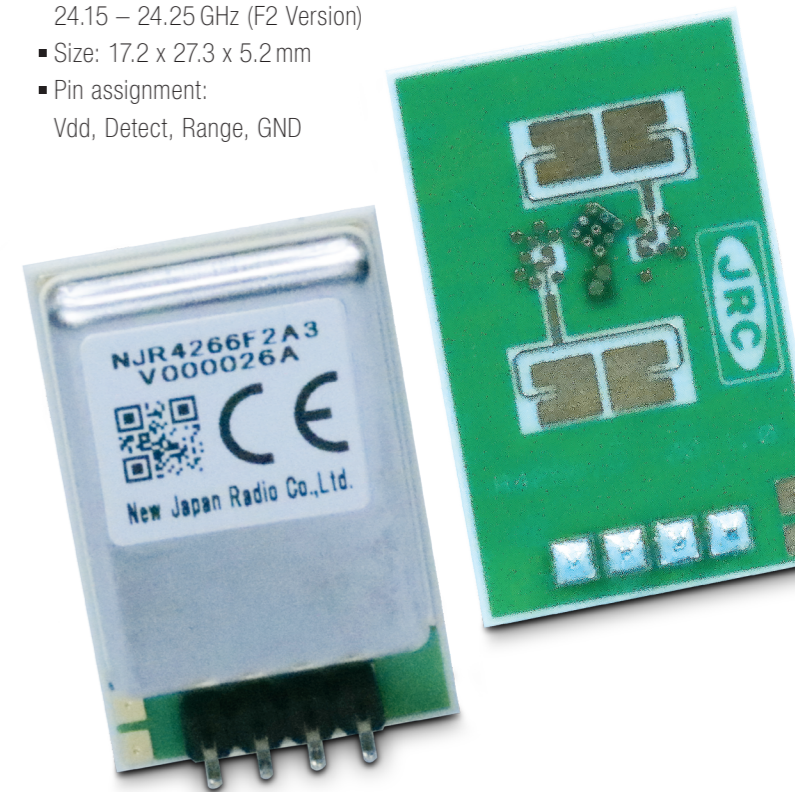
Detection Distance / Analog Voltage

APPLICATIONS

- Contactless switching e.g.
 - Door openers
 - Pedestrian lights
 - Wake-up of devices/systems
 - Proximity switches at close range
 - Switching on video systems when approached
 - Object protection as part of an alarm system
 - Wake-up of devices from energy saving modes to optimize device energy balance
 - Contactless light switch inside/outside

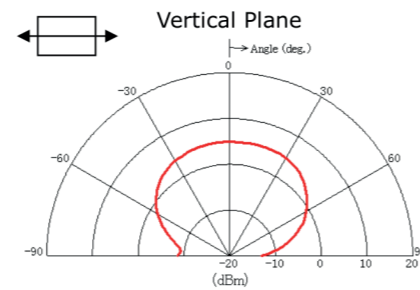
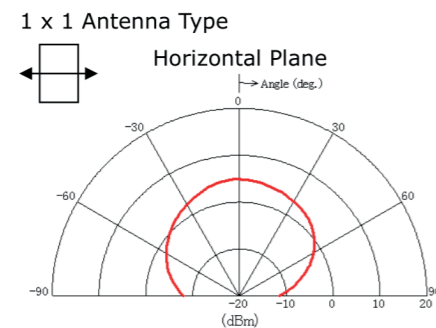
FEATURES

- Type: NJR4266F2A3
- Operating voltage: 3.0 V – 5.25 V
- Current consumption [typ]: 1.9 mA @ 3.3 V
- Range: 20 cm – 80 cm
- Technology: 24 GHz doppler effect based 24.15 – 24.25 GHz (F2 Version)
- Size: 17.2 x 27.3 x 5.2 mm
- Pin assignment: V_{dd}, Detect, Range, GND



RADAR SENSORS – CONTACTLESS SWITCHING MADE EASY

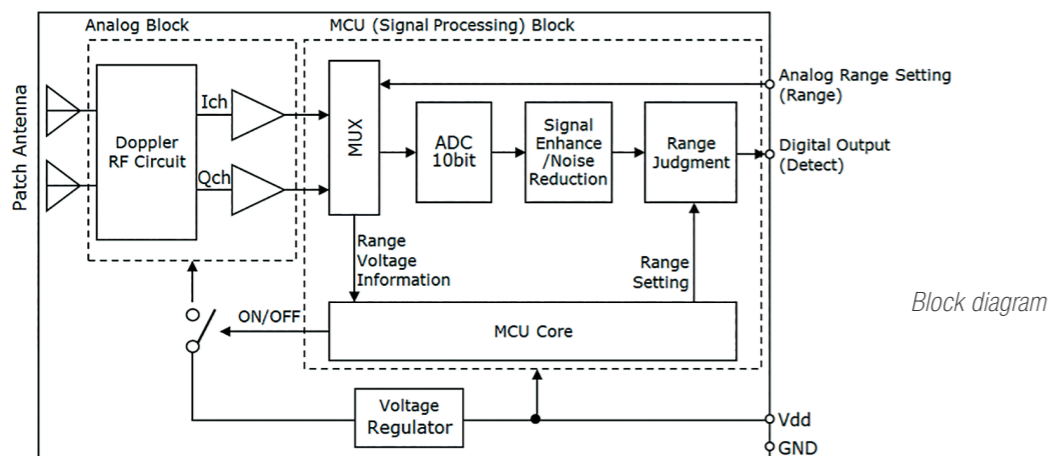
However, the signal can also be used to wake up an MCU via an 'INT' input. The analog voltage for the distance setting can then also be generated by the MCU in a programmable way by means of D/A conversion.



Radiation Pattern: Horz. 80° / Vert. 80°

For system developers, this means a massive relief and time saving, since the module is immediately ready for use and they can fully concentrate on the actual application. No additional algorithms or SW components are required. Everything is integrated ready to use in the compact 17.2 x 27.3 x 5.2 mm module.

Only 4 connections are used to operate the radar sensor. Besides the already discussed two pins only Vcc and GND connections are needed.



Block diagram

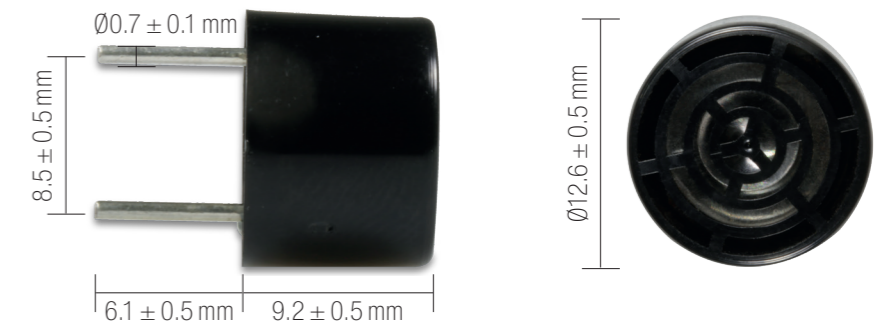
ULTRASONIC TRANSMITTER AND RECEIVER: ST40-12SP AND SR40-12SP

STOCK AVAILABLE

ST40-12SP and SR40-12SP are ultrasonic sensors for indoor ultrasonic sensor applications at 40 kHz. The diameter of the sensors is 12 mm. The sound pressure level of the transmitter is 112 dB min at 40 kHz, the sensitivity of the receiver is -70 dB / V / μ bar min.

APPLICATIONS

- Distance measurement
- Intrusion alarm
- Level metering
- Robot technics
- Autonomous driving for industrial trucks

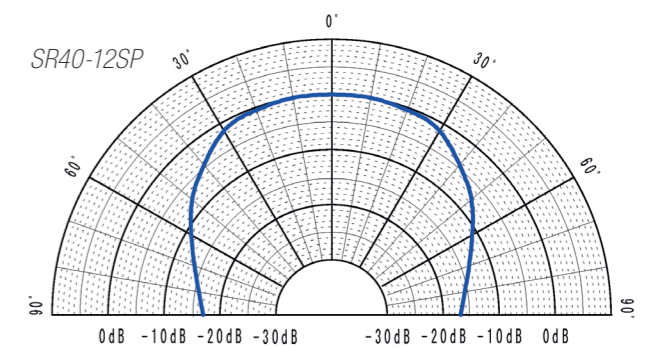
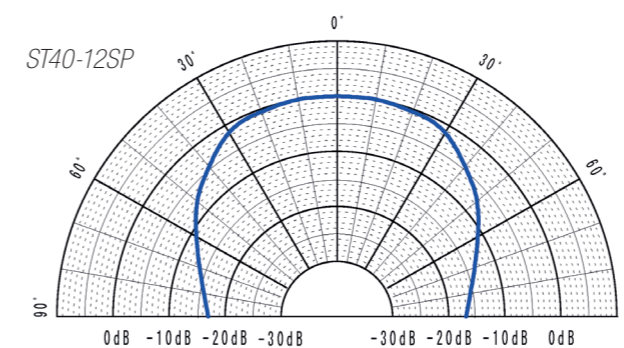


FEATURES TRANSMITTER

- Normal Frequency: 40.0 kHz
- Sound Pressure Level 0 db = 0.002 μ bar: 40.0 kHz = 112 db Min.
- Band Width: 4.0 kHz Min. / 100 db
- Maximum Input Voltage: 60 Vp-p

FEATURES RECEIVER

- Normal Frequency: 40.0 kHz
- Sensitivity at 40.0 kHz: -70.0 db / V / μ bar Min.
- Band Width: 4.0 kHz Min. / (-75.0 db / V / μ bar)



Emission and sensitivity characteristics: -6 db Full Angle: 85° (Typical)

ULTRA LOW CAP. TVS ARRAY TO PROTECT COMMON COMPUTING INTERFACES

HAVE A LOOK

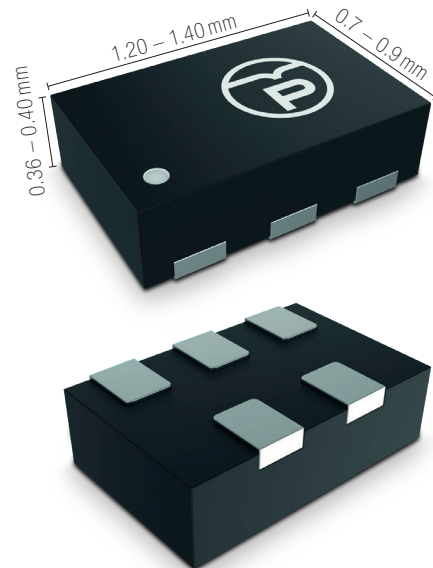
The PLR0504FN5 is tiny ultra (1.4 x 0.9 x 0.4 mm max.) low capacitance steering diode/TVS array. This device is designed to protect high speed data lines of computing applications such as HDMI, USB (1.0 – 3.0), DVI, SATA, PCIe interfaces, as well as telecommunications equipment/systems. At higher operating frequencies or faster edge rates, insertion loss and signal integrity are a major concern. The PLR0504FN5, in conjunction with passive components integrated into a TVS/filter network can be used for EMI /RFI protection for such a scenario.

FEATURES

- IEC 61000-4-2 (ESD): Air ± 15 kV, Contact ± 8 kV
- IEC 61000-4-4 (EFT): 40 A – 5/50 ns
- IEC 61000-4-5 (Surge): 3 A – 8/20 μ s
- ESD Protection > 25 kilovolts
- Protects Four Data Lines
- Low Leakage Current < 0.1 μ A
- Ultra-Low Capacitance: 0.3 pF Typical (I/O to GND)
- RoHS & REACH Compliant

APPLICATIONS

- High-Speed Data Line ESD Protection
- DVI Interface
- FireWire, SATA, PCIe Interfaces
- USB 1.0 – 3.0 Interfaces
- HDMI 1.4 & 2.0 Interfaces



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