



Professional Sound Component Provider

FEEL THE SOUND[📶]
OF TECHNOLOGY

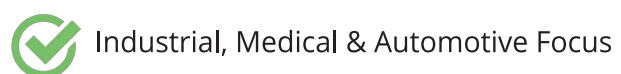
B R O C H U R E



About FLEZON

FLEZON acoustic is a division of Flexxon Pte Ltd. We specialize in manufacturing high-quality acoustic and sound components for electronics devices. With more than 40 years Research and Development experience, we have designed and manufactured over 5,000 models of acoustic components in the range of Buzzer, Transducer, Piezo Element, Microphone, Speaker, Receiver and Ultrasonic Sensor. Our components are widely used in the application of Industrial, Medical (IEC60601), Automotive, Military, Aerospace, Telecommunication, Consumer Electronics and IoT smart devices.

Why FLEZON



Application

Personal Care

- ⊕ Blood Pressure Meter
- ⊕ Defibrillators
- ⊕ Glucometer
- ⊕ Electric Thermometer
- ⊕ i-health Product



Sport

- ⊕ Exercise Bicycle
- ⊕ Rowing Machine
- ⊕ Treadmill



Automotive & Peripherals

- ⊕ Golf Cart
- ⊕ GPS Navigation Device
- ⊕ Parking Sensor System
- ⊕ Electric Car
- ⊕ Petrol Kiosk

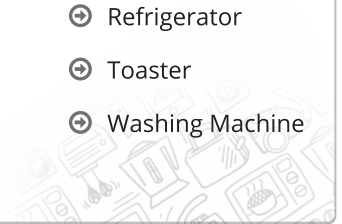
Smart Nation

- ⊕ IoT
- ⊕ Smart City
- ⊕ Smart Card System
- ⊕ Smart Home Appliance



Home Electronics

- ⊕ Air Conditionner
- ⊕ Air Purifier
- ⊕ De-humidifier
- ⊕ Home Automation
- ⊕ Coffee Maker
- ⊕ Dishwasher
- ⊕ Induction Cooker
- ⊕ Microwave Oven
- ⊕ Refrigerator
- ⊕ Toaster
- ⊕ Washing Machine



Safety & Security System

- ⊕ Metal Detector
- ⊕ Smoke Detector
- ⊕ Burglar Alarm
- ⊕ Lighting Control System
- ⊕ Fire Alarm Control Panel



Consumer Electronics

- ⊕ Bluetooth Headset
- ⊕ Headphones
- ⊕ Mobile Phone
- ⊕ Digital Audio Player
- ⊕ Digital Camera
- ⊕ Video Camera
- ⊕ Video Projector
- ⊕ Personal Computers
- ⊕ Printer/Barcode Reader
- ⊕ Tablet
- ⊕ Motherboard
- ⊕ Uninterruptible Power Supply (UPS)



Market Served

✓ Transportation

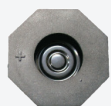
✓ Industrial

✓ Security

✓ Healthcare

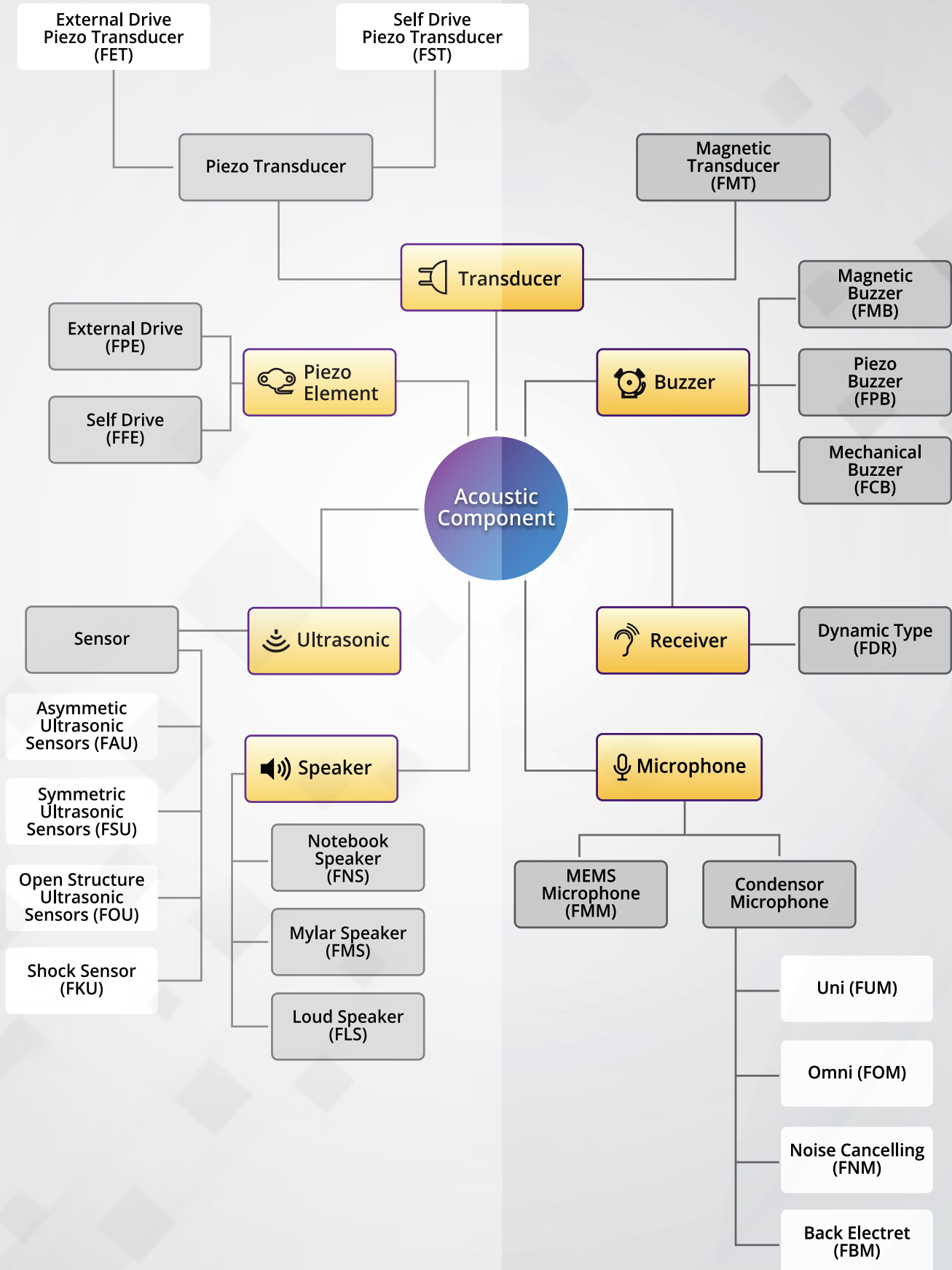
✓ Automotive

✓ Telecommunication



Medical Grade Speaker IEC60601-1-8
P/N: FMS23O13N08XPHM

Acoustic Family



Transducer

FMT Series (Magnetic Transducer)

SMD Type



PIN Type



Model Number	Terminal	Size (Ø / mm)	Height (mm)	Operating Voltage (V)	Rated Voltage (V)	Max. Rated Current (mA)	Coil Resistance (W)	Frequency (Hz)	Min.Sound Output (dBA)	Operating Temperature (°C)	Weight (g)
FMT05S02N03DMPN	SMD	5 x 5	2	2 ~ 4	3	100	12 ± 2	4000	78 at 10cm	-30 ~ +70	0.12
FMT05S03N03DMPN	SMD	5 x 5	3	2 ~ 4	3	100	12 ± 3	4000	78 at 10cm	-30 ~ +70	0.16
FMT06C03N01BPON	PIN	6.7	3.6	1 ~ 3	1.5	80	8 ± 1	2730	70 at 10cm	-20 ~ +80	1
FMT07S02N03BMPN	SMD	7.5 x 7.5	2	2.5 ~ 4.5	3.6	100	12 ± 2	2700	85 at 10cm	-30 ~ +70	0.33
FMT07R02N03BMPN	SMD	7.6 x 8.0	2.5	2 ~ 5	3.6	90	16 ± 2.4	2670	88 at 10cm	-20 ~ +70	0.37
FMT08S03N03BMPN	SMD	8.5 x 8.5	3	2.5 ~ 4.5	3.6	90	16 ± 2.4	2670	90 at 10cm	-40 ~ +85	0.4
FMT08S03N03BMPA	SMD	8.5 x 8.5	3.2	2.5 ~ 4.5	3.6	100	16 ± 3	2730	85 at 10cm	-40 ~ +105	0.5
FMT08S04N05BMPA	SMD	8.5 x 8.5	4	3 ~ 7	5	90	32 ± 3	2350	85 at 10cm	-30 ~ +70	0.6
FMT09C04N03BPYN	PIN	9	4	2 ~ 4	3	70	16 ± 3	2730	85 at 10cm	-20 ~ +60	0.7
FMT09C04N03CMYN	SMD	9	4	2.5 ~ 4.5	3.6	90	16 ± 3	3100	87 at 10cm	-20 ~ +60	0.7
FMT09C04N03BPRN	PIN	9	4	2 ~ 5	3	70	20 ± 3	2731	82 at 10cm	-20 ~ +70	0.6
FMT09C05N05BPRN	PIN	9	5.5	4 ~ 8	5	100	40 ± 7.5	2731	85 at 10cm	-20 ~ +60	1
FMT09C02N03BMPN	SMD	9	2.5	2 ~ 4	3	85	16 ± 3	2731	85 at 10cm	-20 ~ +60	0.6
FMT09S04N03BMPN	SMD	9 x 9	4	2.5 ~ 4.5	3.6	100	16 ± 3	2670	85 at 10cm	-30 ~ +70	1
FMT09C03N03BMPN	SMD	9.6	3.2	2 ~ 5	3.6	80	16 ± 2.4	2670	90 at 10cm	-30 ~ +70	0.5
FMT09C05N05BPRA	PIN	9.6	5	4 ~ 8	5	100	40 ± 7.5	2731	85 at 10cm	-20 ~ +60	1
FMT10R02N03BMPN	SMD	10 x 8.5	2	2 ~ 5	3.6	100	16 ± 2.4	2670	88 at 10cm	-30 ~ +70	0.38
FMT12C04N03BPRN	PIN	12	3.8	2 ~ 4	3	90	15 ± 3	2000	80 at 10cm	-30 ~ +70	2
FMT12C05N01BPRN	PIN	12	5.4	1 ~ 2	1.5	10	50 ± 7.5	2048	70 at 10cm	-20 ~ +60	2
FMT12C05N03APRN	PIN	12	5.4	1 ~ 4	3.6	40	42 ± 5	1980	70 at 10cm	-20 ~ +60	2
FMT12C06N01BPON	PIN	12	6	1 ~ 2	1.5	70	5 ± 1	2700	85 at 10cm	-25 ~ +70	2
FMT12C07N01BPRN	PIN	12	7.5	1 ~ 3	1.5	80	6.5 ± 1	2048	85 at 10cm	-20 ~ +60	2
FMT12C08N01BPRN	PIN	12	8.5	1 ~ 5	1.5	15	42 ± 5	2048	80 at 10cm	-20 ~ +60	2
FMT12C09N05BPRN	PIN	12	9	3 ~ 8	5	40	47 ± 5	2400	85 at 10cm	-40 ~ +85	2
FMT12C09N12BPRN	PIN	12	9	6 ~ 15	12	40	140 ± 14	2400	85 at 10cm	-20 ~ +70	2
FMT12C09N06BPRN	PIN	12	9.5	4 ~ 6	6	40	50 ± 5	2200	85 at 10cm	-40 ~ +85	2
FMT12C10N05BPHN	PIN	12	10	3 ~ 8	5	50	40 ± 5	2400	85 at 10cm	-40 ~ +85	2
FMT12C12N01BPRN	PIN	12	12.5	1 ~ 2	1.5	30	16 ± 4.5	2048	80 at 10cm	-20 ~ +60	2
FMT13S06N05BMPN	SMD	12.8 x 12.8	6.5	4 ~ 8	5	40	47 ± 5	2048	87 at 10cm	-30 ~ +70	2
FMT13S07N12BMPN	SMD	12.8 x 12.8	7.1	8 ~ 16	12	45	140 ± 14	2400	87 at 10cm	-30 ~ +70	2
FMT13S10N05BMPN	SMD	12.8 x 12.8	10	4 ~ 8	5	40	47 ± 5	2400	85 at 10cm	-40 ~ +85	2
FMT13S10N12BMPN	SMD	12.8 x 12.8	10	8 ~ 16	12	40	140 ± 14	2400	85 at 10cm	-40 ~ +85	2
FMT14C05N03BPRN	PIN	14	5	1 ~ 4	3	35	15 ± 6	2000	85 at 10cm	-20 ~ +60	2
FMT14R03N05BMPN	SMD	14 x 11	3	4 ~ 6	5	70	43 ± 3	2730	87 at 10cm	-20 ~ +70	1
FMT16C12N05BPRN	PIN	16	12	3 ~ 12	5	55	28 ± 3	2048	85 at 10cm	-20 ~ +70	4
FMT16C12N12BPRN	PIN	16	12	6 ~ 18	12	50	135 ± 20	2048	85 at 10cm	-40 ~ +90	4
FMT16C14N06BPRN	PIN	16	14	3 ~ 12	6	40	50 ± 5	2048	85 at 10cm	-25 ~ +70	7
FMT16C14N12BPRN	PIN	16	14	6 ~ 18	12	40	115 ± 12	2048	85 at 10cm	-25 ~ +70	7
FMT16C14N06BPRA	PIN	16	14.5	3 ~ 12	6	40	45 ± 7	2048	85 at 10cm	-20 ~ +60	7
FMT16C14N12BPRA	PIN	16	14.5	8 ~ 16	12	40	115 ± 17	2048	85 at 10cm	-30 ~ +80	7
FMT25C12N05XPRN	PIN	25	12.5	3 ~ 5	5	80	27 ± 4	730	85 at 10cm	-40 ~ +85	10

Transducer

FET Series (External Drive Piezo Transducer)

SMD Type



Lead Wire Type



Model Number	Terminal	Size (Ø / mm)	Height (mm)	Min.Sound Output (dBA)	Max. Input Voltage (Vp-p)	Capacitance (pF)	Operating Temperature (°C)	Weight (g)
FET10C03N10CLAN	L/Wire	10	3.2	80min. (10V p-p / Square Wave / 10cm / 3200Hz)	30	11000 ± 30% at 120Hz	-20 ~ +70	1
FET11R01N05DMPN	SMD	11 x 9	1.7	70min. (5V p-p / Square Wave / 10cm / 4100Hz)	25	10000 ± 30% at 1000Hz	-20 ~ +70	1.6
FET11R01N05DMPA	SMD	11 x 9	1.7	75min. (5V p-p / Square Wave / 10cm / 4100Hz)	25	12000 ± 30% at 120Hz	-20 ~ +70	0.25
FET12C08N03DPHN	PIN	12	8.3	70min. (3V p-p / Square Wave / 10cm / 4000Hz)	30	14000 ± 30% at 120Hz	-20 ~ +70	2
FET12C07N12DPON	PIN	12	7.5	80min. (12V p-p / Square Wave / 10cm / 4500Hz)	30	6000 ± 30% at 120Hz	-20 ~ +80	2
FET12S03N03DMPA	SMD	12 x 12	3	75min. (3Vp-p / Square Wave / 10cm / 4000 Hz)	25	16000 ± 30 % at 120 Hz	-40 ~ +105	0.3
FET12C06N05DPHA	PIN	12.6	6.3	80min. (5V p-p / Square Ware / 10cm / 4000Hz)	30	14000 ± 30% at 120Hz	-20 ~ +60	2
FET13C02N10DLAN	L/Wire	13	2.5	80min. (10V p-p / Square Ware / 10cm / 4800Hz)	30	15000 ± 30% at 120Hz	-20 ~ +70	1
FET13C04N05DLAN	L/Wire	13.6	4.15	80min. (5V p-p / Square Ware / 10cm / 4800Hz)	30	12000 ± 30% at 120Hz	-20 ~ +60	3
FET14C07N09DPRN	PIN	14	6.8	80min. (9V p-p / Square Ware / 10cm / 4000Hz)	20	13000 ± 30% at 120Hz	-20 ~ +70	1
FET14C04N10DLRN	L/Wire	14	4	80min. (10V p-p / Square Ware / 10cm / 4800Hz)	30	15000 ± 30% at 120Hz	-20 ~ +70	1
FET14C08N10DPRN	PIN	14	8	85min. (10V p-p / Square Ware / 10cm / 4000Hz)	30	13000 ± 30% at 120Hz	-20 ~ +70	1
FET14S10N05CMPN	SMD	14.3 x 14.3	10.7	80min. (5V p-p / Square Ware / 10cm / 3300Hz)	20	15000 ± 30% at 120Hz	-20 ~ +70	2.3
FET15S07N12EMPN	SMD	14.8 x 14.8	6.8	85min. (12V p-p / Square Ware / 10cm / 5000Hz)	40	12000 ± 30% at 120Hz	-20 ~ +70	2
FET14S04N05DMPN	SMD	14.1 x 14.1	4	75min. (5V p-p / Square Ware / 10cm / 4000Hz)	20	12000 ± 30% at 120Hz	-20 ~ +70	0.8
FET16S02N03DMPN	SMD	16 x 16	2.5	73min. (3V p-p / Square Ware / 10cm / 4000Hz)	25	14000 ± 30% at 1000Hz	-20 ~ +70	1
FET16C06N03DPON	PIN	16.5	6.7	75min. (3V p-p / Square Ware / 10cm / 4000Hz)	25	15000 ± 30% at 1000Hz	-20 ~ +60	0.8
FET16C04N09DLAN	L/Wire	16.5	4	80min. (9V p-p / Square Ware / 10cm / 4000Hz)	25	9500 ± 30% at 120Hz	-20 ~ +60	1
FET17C07N09DPHN	PIN	16.8	7.2	80min. (9V p-p / Square Ware / 10cm / 4000Hz)	30	10500 ± 30% at 120Hz	-20 ~ +70	3
FET17C07N03BLAN	L/Wire	16.8	7	80min. (3V rms / Sine Wave / 10cm / 2800Hz)	30	23000 ± 30% at 1000Hz	-20 ~ +70	1
FET17C05N03DMPN	SMD	17	5.2	85min. (3V rms / Sine Wave / 10cm / 4000Hz)	30	10000 ± 30% at 120Hz	-20 ~ +70	3
FET17C08N09BPRN	PIN	17	8.6	78min. (9V p-p / Square Ware / 10cm / 2000Hz)	25	25000 ± 30% at 120Hz	-40 ~ +85	1
FET17C06N12DMPN	SMD	17	6	90min. (12V p-p / Square Ware / 10cm / 4000Hz)	25	15000 ± 30% at 120Hz	-40 ~ +85	2
FET17C07N03DPHA	PIN	17.5	7.6	85min. (3V rms / Sine Wave / 10cm / 4000Hz)	30	12000 ± 30% at 120Hz	-20 ~ +60	2
FET18C07N03BMPN	SMD	18.4	7.3	75min. (3.6V p-p / Square Ware / 10cm / 2000Hz)	25	34000 ± 30% at 120Hz	-20 ~ +70	2
FET22C07N03DPHN	PIN	22	7	80min. (3V rms / Sine Wave / 10cm / 4000Hz)	30	15000 ± 30% at 120Hz	-20 ~ +70	1
FET22C07N03DPHA	PIN	22	7	80min. (3V rms / Sine Wave / 10cm / 4000Hz)	30	15000 ± 30% at 1000Hz	-30 ~ +70	3
FET22C11N03DPHN	PIN	22	10.8	85min. (3V p-p / Square Ware / 10cm / 4000Hz)	40	15000 ± 30% at 1000Hz	-40 ~ +85	3.2
FET22C05N10BPPN	PIN	22	5.6	80min. (10V p-p / Square Ware / 10cm / 2500Hz)	30	25000 ± 30% at 120Hz	-30 ~ +85	2
FET22C07N12DMPN	SMD	22.1	7	90min. (12V p-p / Square Ware / 10cm / 4000Hz)	30	19000 ± 30% at 120Hz	-20 ~ +70	2.8
FET22C09N10BPRN	PIN	22.5	9	80min. (10V p-p / Square Ware / 10cm / 2048Hz)	40	24000 ± 30% at 120Hz	-20 ~ +80	2
FET23C05N12DLAN	L/Wire	23	5	80min. (12V p-p / Square Ware / 30cm / 4000Hz)	40	24000 ± 30% at 120Hz	-20 ~ +60	2
FET23C04N12ELAN	L/Wire	23	4.3	70min. (12V p-p / Square Ware / 30cm / 5000Hz)	40	15000 ± 30% at 120Hz	-20 ~ +60	2
FET23C10N12DPHN	PIN	23	9.8	85min. (12V p-p / Square Ware / 10cm / 4800Hz)	40	15000 ± 30% at 120Hz	-20 ~ +60	3.5
FET24C07N09DPRN	PIN	24	7.5	85min. (9V p-p / Square Ware / 10cm / 4000Hz)	30	17000 ± 30% at 120Hz	-20 ~ +60	3
FET24C05N03DLAN	L/Wire	24	5.5	75min. (3V p-p / Square Ware / 10cm / 4096Hz)	30	10000 ± 30% at 1000Hz	-20 ~ +60	1
FET24C04N15ELRN	L/Wire	24	4	90min. (15V p-p / Square Ware / 10cm / 5500Hz)	30	18000 ± 30% at 120Hz	-20 ~ +60	1.9
FET26R07N09BPAN	PIN	26.5 x 22	7	85min. (9V p-p / Square Ware / 10cm / 2000Hz)	30	20000 ± 30% at 120Hz	-20 ~ +80	3
FET27C02N09DLMN	L/Wire	27.6	2.1	85min. (9V p-p / Square Ware / 10cm / 4200Hz)	40	35000 ± 30% at 1000Hz	-30 ~ +80	2
FET30C10N03BPHN	PIN	30	10	90min. (3V rms / Sine Wave / 10cm / 2500Hz)	30	25000 ± 30% at 1000Hz	-20 ~ +70	6
FET30C05N03DLAN	L/Wire	30	5.5	85min. (3V rms / Sine Wave / 10cm / 4000Hz)	30	25000 ± 30% at 1000Hz	-20 ~ +70	5
FET30C07N05DPAN	PIN	30	7.5	85min. (5V p-p / Square Ware / 10cm / 4600Hz)	30	30000 ± 30% at 120Hz	-20 ~ +60	4
FET34C08N09APRN	PIN	34.2	8.5	80min. (9V p-p / Square Ware / 10cm / 1200Hz)	40	45000 ± 30% at 120Hz	-20 ~ +60	5
FET34C02N30ALAN	L/Wire	34.5	2	80min. (30V p-p / Square Ware / 10cm / 1300Hz)	40	45000 ± 30% at 120Hz	-20 ~ +60	2
FET34C09N03ALAN	L/Wire	34.5	9	70min. (3V rms / Sine Wave / 10cm / 1200Hz)	30	50000 ± 30% at 120Hz	-20 ~ +70	6
FET45C13N12CTYN	PLATE	45	13.7	100min. (12V rms / Sine Wave / 30cm / 3200Hz)	40	25000 ± 30% at 120Hz	-40 ~ +105	11
FET41C14N03KTAN	PLATE	41	14.4	95min. (2.83V rms / Sine Wave / 30cm / 22000Hz)	10	-	-20 ~ +70	8
FET42C16N12BLAN	L/Wire	41.8	16	90min. (12V p-p / Square Ware / 30cm / 2800Hz)	30	35000 ± 30% at 120Hz	-20 ~ +60	3

Transducer

FST Series (Self Drive Piezo Transducer)

Pin Type



Lead Wire Type

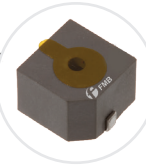


Model Number	Terminal	Size (Ø / mm)	Height (mm)	Operating Voltage (V)	Rated Voltage (V)	Max. Rated Current (mA)	Resonant Frequency (Hz)	Min.Sound Output (dBA)	Operating Temperature (°C)	Weight (g)
FST22C06N12CPHN	PIN	22.5	5.9	3 ~ 18	12	15	3500 ± 500	80 at 30cm	-20 ~ +60	1.7
FST24C07N12FPYN	PIN	24.7	7	3 ~ 24	12	20	6800 ± 500	90 at 10cm	-20 ~ +70	2.5
FST29C16N09CLAN	L/Wire	29.7	16.5	3 ~ 28	9	180	3400 ± 500	100 at 30cm	-20 ~ +60	8
FST30C10N12CPHN	PIN	30	10.1	1.5 ~ 24	12	75	3700 ± 500	75 at 1m	-20 ~ +105	5
FST30C10N12CPRN	PIN	30	10.5	3 ~ 20	12	10	3600 ± 500	88 at 10cm	-30 ~ +70	5
FST39C16N09CPRN	PIN	39	15.8	3.5 ~ 28	9	15	3400 ± 500	95 at 30cm	-20 ~ +70	14.5
FST42C16N12BLAN	L/Wire	41.8	16	3 ~ 24	12	8	2800 ± 500	85 at 30cm	-40 ~ +85	10

Buzzer

FMB Series (Magnetic Buzzer)

SMD Type



Pin Type



Model Number	Terminal	Size (Ø / mm)	Height (mm)	Operating Voltage (V)	Rated Voltage (V)	Max. Rated Current (mA)	Frequency (Hz)	Min Sound Output (dBA)	Tone Nature	Operating Temperature (°C)	Weight (g)
FMB09C05S03BPRN	PIN	9.6	5	2 ~ 5	3	20	2500 ± 200	73 at 10cm	Single	-25 ~ +70	1
FMB09C05S05BPRN	PIN	9.6	5	3 ~ 7	5	25	2500 ± 200	76 at 10cm	Single	-25 ~ +70	1
FMB12C06S05BPRN	PIN	12	6.5	4 ~ 7	5	30	2300 ± 300	85 at 10cm	Single	-20 ~ +70	2
FMB12C07S05BPRN	PIN	12	7.5	3 ~ 7	5	30	2300 ± 400	83 at 10cm	Single	-30 ~ +70	2
FMB12C07S12BPRN	PIN	12	7.5	9 ~ 15	12	30	2300 ± 400	83 at 10cm	Single	-20 ~ +70	2
FMB12C09S05BPRN	PIN	12	9.5	4 ~ 7	5	30	2300 ± 300	85 at 10cm	Single	-40 ~ +85	2
FMB12C09S12BPRN	PIN	12	9.5	8 ~ 15	12	30	2300 ± 300	85 at 10cm	Single	-40 ~ +85	2
FMB13S07S05BMPN	SMD	12.8	7	4 ~ 7	5	30	2400 ± 300	88 at 10cm	Single	-20 ~ +60	2
FMB13S07S12BMPN	SMD	12.8	7	8 ~ 15	12	30	2400 ± 300	85 at 10cm	Single	-20 ~ +70	2
FMB13S10S05BMPN	SMD	12.8	10	4 ~ 7	5	30	2300 ± 300	85 at 10cm	Single	-20 ~ +70	2
FMB13S10S12BMPN	SMD	12.8	10	8 ~ 15	12	30	2300 ± 300	85 at 10cm	Single	-20 ~ +70	2
FMB16C14S06BPRN	PIN	16	14	4 ~ 8	6	30	2300 ± 300	85 at 10cm	Single	-40 ~ +85	7
FMB16C14S12BPRN	PIN	16	14	8 ~ 15	12	30	2300 ± 300	85 at 10cm	Single	-40 ~ +90	7
FMB22C12S12CPAN	PIN	22	12.5	6 ~ 16	12	10	3400 ± 500	85 at 30cm	Single	-20 ~ +60	13
FMB28C14S06BLAN	L/Wire	28	14.5	4 ~ 9	6	35	2800 ± 200	85 at 30cm	Single	-20 ~ +60	17
FMB28C20P06BLAN	L/Wire	28	20	4 ~ 9	6	10	2800 ± 200	78 at 30cm	PULSE	-20 ~ +60	10

Buzzer

FCB Series (Mechanical Buzzer)

Lead Wire Type



Plate Type



Model Number	Terminal	Size (Ø / mm)	Height (mm)	Operating Voltage (V)	Rated Voltage (V)	Max. Rated Current (mA)	Resonant Frequency (Hz)	Min Sound Output (dBA)	Tone Nature	Operating Temperature (°C)	Weight (g)
FCB23R15S03XLAN	L/Wire	23 x 17	15.5	2 ~ 4	3	20	400 ± 100	70 at 20cm	Single	-20 ~ +65	8
FCB23R15S24XLAN	L/Wire	23 x 17	15.5	15 ~ 27	24	30	400 ± 100	75 at 20cm	Single	-10 ~ +60	10
FCB23R13S12XPAN	PIN	23 x 17	13.5	9 ~ 15	12	25	400 ± 100	75 at 20cm	Single	-10 ~ +60	10
FCB22R14S09XPAN	PIN	22.5 x 17	14	6 ~ 12	9	25	400 ± 100	75 at 20cm	Single	-10 ~ +60	10
FCB23X20A23FTHN	PLATE	23	20	160 ~ 230 VAC	230 VAC	30	6500+/-10%	78 at 10cm	Single	-20 ~ +60	20
FCB23R15S24XPAN	PIN	23 x 17	15.5	15 ~ 27	24	30	400 ± 50	75 at 30cm	Single	-20 ~ +65	8.5
FCB24X21A23NTHN	PLATE	24.3 x 24	21	160 ~ 230 VAC	230 VAC	30	-	83 at 10cm	Single	-40 ~ +85	34
FCB26C17S24XLAN	L/Wire	25.8	17.6	20 ~ 28	24	21	400 ± 100	95 at 10cm	Single	-20 ~ +60	17
FCB26S19S12XPRN	PIN	26 x 26	19.7	7 ~ 16	12	50	400 ± 100	95 at 10cm	Single	-40 ~ +70	17
FCB26S19S12XPAN	PIN	26 x 26	19.5	8 ~ 16	12	55	400 ± 100	95 at 10cm	Single	-10 ~ +60	17

Buzzer

FPB Series (Piezo Buzzer)

Pin Type



Plug Type



Model Number	Terminal	Size (Ø / mm)	Height (mm)	Operating Voltage (V)	Rated Voltage (V)	Max. Rated Current (mA)	Frequency (Hz)	Min Sound Output (dBA)	Tone Nature	Operating Temperature (°C)	Weight (g)
FPB14C07S12DPRN	PIN	13.8	7.5	3 ~ 16	12	7	4000 ± 500	80 at 10cm	Single	-20 ~ +60	1
FPB15C14S12DPCN	PIN	15.4	13.9	1 ~ 18	12	20	4000 ± 500	85 at 10cm	Single	-20 ~ +60	2.5
FPB17C10S12DMPN	SMD	17.6	10	3 ~ 16	12	10	4000 ± 500	85 at 10cm	Single	-20 ~ +75	1.6
FPB22C11S12DLAN	L/Wire	22	10.8	3 ~ 30	12	3	4500 ± 500	85 at 30cm	Single	-20 ~ +60	5
FPB22C12S09CLAN	L/Wire	22	12	1.5 ~ 24	9	20	3300 ± 500	85 at 30cm	Single	-20 ~ +70	14
FPB23C10S12CPHN	PIN	23	9.8	1.5 ~ 28	12	10	3500 ± 500	85 at 30cm	Single	-30 ~ +85	4
FPB23C10S12CLAN	L/Wire	23	9.8	3 ~ 28	12	10	3500 ± 500	85 at 30cm	Single	-25 ~ +65	3.5
FPB23C17S12CLAN	L/Wire	23	17	3 ~ 16	12	8	3700 ± 500	90 at 30cm	Single	-20 ~ +60	5
FPB23C19A22CPAN	PIN	23	19	30 ~ 264 VAC	220 VAC	5	3300 ± 500	80 at 30cm	Single	-20 ~ +60	8
FPB23C09S12CPRN	PIN	23.5	9.5	3 ~ 20	12	15	3400 ± 500	90 at 10cm	Single	-20 ~ +60	4
FPB24C16S12BPRN	PIN	23.8	16	3 ~ 20	12	8	2900 ± 500	85 at 30cm	Single	-20 ~ +85	6
FPB24C09S09CLHN	L/Wire	24	9.5	3 ~ 20	9	10	3400 ± 500	82 at 30cm	Single	-20 ~ +65	4
FPB24C12S12CMPN	SMD	24	12	3 ~ 16	12	10	3400 ± 500	90 at 10cm	Single	-20 ~ +75	0.8
FPB26S26S12CEYN	PLUG	25.9 x 25.9	25.9	9 ~ 18	12	15	3300 ± 500	88 at 30cm	Single	-20 ~ +85	10
FPB26C22X91BPAN	PIN	26	22	5 ~ 18	9/12	50	2800 ± 500	92/60cm (9V) / 98/60cm (12V)	Single	-20 ~ +60	15
FPB29C24D24CLAN	L/Wire	29.5	24.5	3 ~ 28	24	30	3200 ± 500	90/95 at 30cm	Dual	-40 ~ +85	15
FPB30C09S12CLAN	L/Wire	29.8	9.5	3 ~ 20	12	15	3400 ± 500	85 at 30cm	Single	-20 ~ +65	6
FPB30C19S12CPHN	PIN	30	19.5	3 ~ 20	12	10	3500 ± 500	90 at 30cm	Single	-20 ~ +60	10
FPB30C17S12APAN	PIN	30	17	3 ~ 30	12	12	1800 ± 500	87 at 10cm	Single	-20 ~ +70	5
FPB30C14S12CPAN	PIN	30.2	14.7	3 ~ 20	12	10	3000 ± 500	90 at 30cm	Single	-20 ~ +60	3
FPB32R07S12EPAN	PIN	32 x 23.4	6.8	3 ~ 24	12	8	5800 ± 500	85 at 10cm	Single	-20 ~ +60	8
FPB32C14S12CLAN	L/Wire	32	14	3 ~ 28	12	15	3900 ± 500	87 at 30cm	Single	-20 ~ +60	8
FPB33C19S12CLHN	L/Wire	33	19.4	3 ~ 20	12	15	3100 ± 500	90 at 30cm	Single	-30 ~ +70	2.5
FPB35C30S09BTAN	PLATE	35.2	30.5	9 ~ 48	9	30	2800 ± 500	80 at 60m	Single	-20 ~ +60	26
FPB36C26F12CEAN	PLUG	36.3	26	5 ~ 28	12	18	3000 ± 500	85 at 1m	Fast Pulse	-20 ~ +60	35
FPB42C16S12BLAN	L/Wire	41.8	16	1.5 ~ 20	12	10	2800 ± 500	96 at 30cm	Single	-20 ~ +60	15
FPB42C20S24BTYN	PLATE	42	20.5	1 ~ 28	24	15	2900 ± 500	85 at 30cm	Single	-20 ~ +60	18
FPB43C14S12BPRN	PIN	43	14	3 ~ 20	12	12	2800 ± 500	100 at 30cm	Single	-20 ~ +60	11
FPB43C33P12BTAN	PLATE	43	33	6 ~ 28	12	20	2900 ± 500	90 at 30cm	Single / Slow Pulse	-20 ~ +60	35
FPB43C34D12BTAN	PLATE	43.5	34.5	4 ~ 16	12	20/25	2900 ± 500	90/95 at 30cm	Dual	-20 ~ +60	35
FPB45C26D12BLAN	L/Wire	45	26	1.5 ~ 15	12	30	2900 ± 500	100/95 at 30cm	Dual	-20 ~ +70	28
FPB44X57R24ALAN	L/Wire	44.5 x 40	57.5	12 ~ 28	24	150	1500 ~ 3500	100 at 1m	Siren	-20 ~ +70	60
FPB50C29S12BPAN	PIN	50	29	3 ~ 13	12	75	2500 ± 500	108 at 25.4cm	Single	-20 ~ +60	40
FPB50C38D12CLAN	L/Wire	50	38	6 ~ 16	12	65	3000 ~ 3200 ± 500	105 at 30cm	Dual	-20 ~ +60	45
FPB52C50R12ALAN	L/Wire	52	50	6 ~ 15	12	280	1500 ~ 4000	105 at 1m	Siren	-20 ~ +60	80
FPB53C31S06BLAN	L/Wire	53	31	3 ~ 12	6	20	2800 ± 500	93 at 30cm	Single	-30 ~ +70	38
FPB60C38S12BLAN	L/Wire	60	38	6 ~ 15	12	300	2800 ± 400	100 at 1m	Single	-20 ~ +70	110
FPB84R32R12BLAN	L/Wire	84.5 x 54.5	32.5	9 ~ 15	12	120	2600 ~ 3100	105 at 30cm	Siren	-20 ~ +60	90
FPB1XS44R12ALAN	L/Wire	105.5 x 105.5	44.5	6 ~ 15	12	190	1500 ~ 3100	97 at 3m	Siren	-20 ~ +60	190

Piezo Element

FPE Series (External Drive)



Model Number	Terminal	Diameter (D1) (Ø mm)	Diameter (D2) (Ø mm)	Metal Thickness (H) (mm)	Total Height (T) (mm)	Frequency (Hz)	Resonant Impedance (Ω)	Capacitance ± 30% (pF)	Weight (g)
FPE06C05N03KNBN	NIL	6.5	5	0.1	0.21	13500 ± 2000	2500 Max.	3500	<1g
FPE12C09N06KNBN	NIL	12	9	0.2	0.41	16500 ± 1500	600 Max.	6000	<1g
FPE15C11N08KNBN	NIL	15	11	0.2	0.39	10500 ± 1000	500 Max.	8500	<1g
FPE20C15N13GNBN	NIL	20	15	0.2	0.46	7100 ± 500	250 Max.	13000	<1g
FPE27C20N35CNBN	NIL	27	20	0.2	0.38	3300 ± 500	200 Max.	35000	<1g
FPE31C20N23BNBN	NIL	31	20	0.2	0.46	2900 ± 300	500 Max.	23000	<1g
FPE35C25N40BNBN	NIL	35	25	0.25	0.53	2800 ± 500	250 Max.	40000	<1g
FPE41C25N40ANBN	NIL	41	25	0.2	0.44	1500 ± 300	1000 Max.	40000	<1g
FPE50C30N60ANBN	NIL	50	30	0.2	0.41	1100 ± 500	800 Max.	60000	<1g

Piezo Element

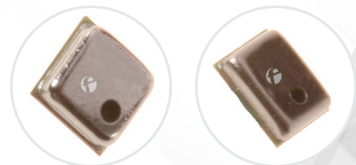
FFE Series (Self Drive)



Model Number	Terminal	Diameter (D1) (Ø mm)	Diameter (D2) (Ø mm)	Metal Thickness (H) (mm)	Total Height (T) (mm)	Frequency (Hz)	Resonant Impedance (Ω)	Capacitance ± 30% (pF)	Weight (g)
FFE20C15N03CNBN	NIL	20	15	0.1	0.22	3900 ± 500	400 Max.	Cm : 25000 / Cf : 3000	<1g
FFE27C20N03CNBN	NIL	27	20	0.15	0.32	3000 ± 300	300 Max.	Cm : 30000 / Cf : 3100	<1g
FFE35C25N04BNBN	NIL	35	25	0.25	0.48	2600 ± 300	200 Max.	Cm : 36000 / Cf : 4000	<1g

Microphone

FMM Series (MEMS Mic)



Model Number	Terminal	Size (mm)	Height (mm)	Operating Voltage Range (V)	Sensitivity (0 dB = 1V / Pa) at 1K Hz (dB)	Power Supply (Vs) (V)	Resistance Loading (RL) (Ω)	Max Current (mA)	Frequency Range (Hz)	Voltage Deduction Characteristic	S/N Ratio (dB)	Weight (g)
FMM04S01N38EMMN	SMD	4.5 X 4.5	1.45	1.5 ~ 3.6	-38 ± 3	2.2	2.2K	0.15	100 ~ 16000	Within 3 dB at 2 V	> 57	0.3
FMM04R01N42EMMN	SMD	4.72 X 3.76	1.25	1.5 ~ 3.6	-42 ± 3	2.2	2.2K	0.2	100 ~ 16000	Within 3 dB at 2 V	> 55	0.3

Microphone

FOM Series (Omnidirectional Mic)



Model Number	Terminal	Diameter (Ø mm)	Height (mm)	Operating Voltage Range (V)	Sensitivity (0 dB = 1V / Pa) at 1K Hz (dB)	Power Supply (Vs) (V)	Resistance Loading (RL) (Ω)	Max Current (mA)	Frequency Range (Hz)	Voltage Deduction Characteristic	S/N Ratio (dB)	Weight (g)
FOM03C01N44ENMN	NIL	3	1.5	1.4 ~ 5	-44 ± 3	2	2.2K	0.5	100 ~ 10000	Within 3 dB at 1.5 V	> 58	< 1g
FOM04C01N44FNMN	NIL	4	1.5	1 ~ 10	-44 ± 3	2	2.2K	0.5	100 ~ 10000	Within 3 dB at 1.5 V	> 60	< 1g
FOM06C02N40FPMN	PIN	6	2.2	1 ~ 10	-40 ± 3	2	2.2K	0.5	50 ~ 16000	Within 3 dB at 1.5 V	> 60	< 1g
FOM06C02N42FNMN	NIL	6	2.7	1 ~ 10	-42 ± 3	2	2.2K	0.5	50 ~ 16000	Within 3 dB at 1.5 V	> 60	< 1g
FOM06C05N42FNMN	NIL	6	5.2	1 ~ 10	-42 ± 3	2	2.2K	0.5	50 ~ 16000	Within 3 dB at 1.5 V	> 60	< 1g
FOM09C04N40FNMN	NIL	9.7	4.5	1 ~ 10	-40 ± 3	1.5	2.2K	0.5	50 ~ 16000	Within 3 dB at 1.1 V	> 60	1g
FOM09C06N40ENMN	NIL	9.7	6.7	1 ~ 10	-40 ± 3	1.5	2.2K	0.5	100 ~ 8000	Within 3 dB at 1.1 V	> 58	1g

Microphone

FUM Series (Unidirectional Mic)



Model Number	Terminal	Diameter (Ø mm)	Height (mm)	Operating Voltage Range (V)	Sensitivity (0 dB = 1V / Pa) at 1K Hz (dB)	Power Supply (Vs) (V)	Resistance Loading (RL) (Ω)	Max Current (mA)	Frequency Range (Hz)	Voltage Deduction Characteristic	S/N Ratio (dB)	Weight (g)
FUM06C03N46ENMN	NIL	6	3.5	1 ~ 10	-46 ± 4	2	2.2K	0.5	100 ~ 10000	Within 3 dB at 1.5 V	>55	<1g

Microphone

FNM Series (Noise Cancelling Mic)



Model Number	Terminal	Diameter (Ø mm)	Height (mm)	Operating Voltage Range (V)	Sensitivity (0 dB = 1V / Pa) at 1K Hz (dB)	Power Supply (Vs) (V)	Resistance Loading (RL) (Ω)	Max Current (mA)	Frequency Range (Hz)	Voltage Deduction Characteristic	S/N Ratio (dB)	Weight (g)
FNM04C03N54ENMN	NIL	4.5	3	1 ~ 10	-54 ± 3 (at L=50 cm)	2	2.2K	0.5	100 ~ 10000	Within 3 dB at 1.5 V	>55	<1g
FNM09C05N54ENMN	NIL	9.7	5.2	1 ~ 10	-54 ± 4 (at L=50 cm)	1.5	680	0.5	100 ~ 10000	Within 3 dB at 1.1 V	>55	1g

Speaker

FMS Series (Mylar Speaker)



Model Number	Terminal	Size (Ø/mm)	Height (mm)	Impedance (Ω)	Sound Output (dB)	Resonant Frequency (f ₀) (Hz)	Response Frequency f ₀ ~ (Hz)	Rated Power (w)	Max. Power (w)	Operating Temperature (°C)	Weight (g)
FMS13S04N08XMPN	SMD	13 X 13	4	8 ± 20 %	88 ± 3	850 ± 15 %	20000	0.7	1	-30 ~ +85	1.4
FMS15R03N08XTHN	PLATE	15 X 11	3.5	8 ± 15 %	84 ± 3	550 ± 15 %	20000	0.7	1	-20 ~ +55	1.7
FMS17C04N08XNPN	NIL	Ø 17	3.4	8 ± 15 %	90 ± 3	800 ± 20 %	10000	0.8	1	-30 ~ +70	1.5
FMS20C03N08XNMN	NIL	Ø 20	3	8 ± 15 %	80 ± 3	800 ± 20 %	20000	0.3	0.5	-20 ~ +55	2.4
FMS28C05N08XNMN	NIL	Ø 28	4.9	8 ± 15 %	83 ± 3	700 ± 20 %	10000	1	1.5	-20 ~ +55	5.8
FMS36C05N08XNMN	NIL	Ø 36	4.9	8 ± 15 %	90 ± 3	500 ± 20 %	10000	0.5	0.8	-20 ~ +55	8.6
FMS40C05N08XNMN	NIL	Ø 40	5	8 ± 15 %	96 ± 3	600 ± 20 %	15000	1	1.5	-20 ~ +55	9.5

Speaker

FLS Series (Loud Speaker)



Model Number	Terminal	Size (mm)	Height (mm)	Impedance (Ω)	Sound Output (dB)	Resonant Frequency (f ₀) (Hz)	Response Frequency f ₀ ~ (Hz)	Rated Power (w)	Max. Power (w)	Operating Temperature (°C)	Weight (g)
FLS40C06N08XNMN	NIL	Ø 40	6.55	8 ± 15 %	92 ± 3	700 ± 20 %	4800	0.5	0.8	-20 ~ +55	9.1
FLS50C12N08XNMN	NIL	Ø 50	12.2	8 ± 15 %	85 ± 3	450 ± 20 %	5000	1	1.5	-20 ~ +60	14.8
FLS66C12N08XNMN	NIL	Ø 66	12.5	8 ± 15 %	95 ± 3	380 ± 20 %	4000	0.5	0.8	-20 ~ +55	17.2

Speaker

FNS Series (Notebook Speaker)



Model Number	Terminal	Size (mm)	Height (mm)	Impedance (Ω)	Sound Output (dB)	Resonant Frequency (f ₀) (Hz)	Response Frequency f ₀ ~ (Hz)	Rated Power (w)	Max. Power (w)	Operating Temperature (°C)	Weight (g)
FNS25R05N08XNAN	NIL	24.9 X 14.9	5	8 ± 15 %	82 ± 3	900 ± 20 %	20000	0.5	1	-20 ~ +50	2
FNS40R06N08XNMN	NIL	40 X 20	5.8	8 ± 15 %	89 ± 3	450 ± 20 %	20000	1	2	-40 ~ +70	7.6

Dynamic Receiver

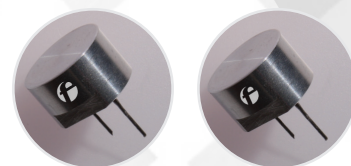
FDR Series (Dynamic Receiver)



Model Number	Terminal	Size (Ø mm)	Height (mm)	AC Impedance (Ω)	Sensitivity at 1KHz (dB)	Frequency Range (Hz)	Input Power	Operating Temperature (°C)	Weight (g)
FDR35C17N1XCTAN	PLATE	Ø 35	17.6	150 ± 20 %	94 ± 3	300 ~ 3400	1.0mW	- 20 ~ + 60	35
FDR15R02N32GTPN	PLATE	15 X 6	2.0	32 ± 15 %	111 ± 3	300 ~ 7000	10mW	- 30 ~ + 70	0.5

Ultrasonic Sensor

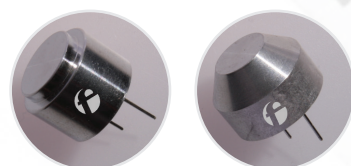
FAU Series (Asymmetric Ultrasonic Sensor)



Model Number	Terminal	Construction	Function	Diameter (Ø mm)	Height (mm)	Sound Pressure Level (dB)	Sensitivity (dB)	Center Frequency (Hz)	Capacitance (pF) ± 15 %	Allowable Input Voltage (p-p)	Operating Temperature (°C)	Weight (g)
FAU12C08W02KPMN	PIN	Waterproof Type	Dual Use	12	8	Min. 95	Min. -82	40000 ± 1000	1800	140V (40 KHz) Pulse width 0.5 ms / Interval 20 ms	- 40 ~ + 80	3
FAU14C09W02KPMN	PIN	Waterproof Type	Dual Use	14	9	Min. 95	Min. -82	40000 ± 1000	1800	140V (40 KHz) Pulse width 0.5 ms / Interval 20 ms	- 40 ~ + 80	3
FAU15C09W02KPMN	PIN	Waterproof Type	Dual Use	15	9	Min. 95	Min. -82	40000 ± 1000	1800	140V (40 KHz) Pulse width 0.5 ms / Interval 20 ms	- 40 ~ + 80	3

Ultrasonic Sensor

FSU Series (Symmetric Ultrasonic Sensor)



Model Number	Terminal	Construction	Function	Diameter (Ø mm)	Height (mm)	Sound Pressure Level (dB)	Sensitivity (dB)	Center Frequency (Hz)	Capacitance (pF) ± 15 %	Allowable Input Voltage (p-p)	Operating Temperature (°C)	Weight (g)
FSU14C09W02KPMN	PIN	Waterproof Type	Dual Use	14	9	Min. 95	Min. -82	40000 ± 1000	1800	140V (40 KHz) Pulse width 0.5 ms / Interval 20 ms	- 40 ~ + 80	3
FSU16C12W02KPMN	PIN	Waterproof Type	Dual Use	16	12	Min. 100	Min. -82	40000 ± 1000	1800	140V (40 KHz) Pulse width 0.5 ms / Interval 20 ms	- 40 ~ + 80	3
FSU18C12W02KPMN	PIN	Waterproof Type	Dual Use	18	12	Min. 100	Min. -82	40000 ± 1000	1800	140V (40 KHz) Pulse width 0.5 ms / Interval 20 ms	- 40 ~ + 80	3

Ultrasonic Sensor

FOU Series (Open Structure Ultrasonic Sensor)



Model Number	Terminal	Construction	Function	Diameter (Ø mm)	Height (mm)	Sound Pressure Level (dB)	Sensitivity (dB)	Center Frequency (Hz)	Capacitance (pF) ± 20 %	Operating Temperature (°C)	Weight (g)
FOU10C07N02KPAN	PIN	Open Type	Dual Use	9.8	7	Min. 100	Min. -70	40000 ± 1000	1400	- 20 ~ + 70	2
FOU16C12N01KPMN	PIN	Open Type	Transmitter	16.2	12.2	Min. 118	-	40000 ± 1000	2100	- 20 ~ + 70	3
FOU16C12N03KPMN	PIN	Open Type	Receiver	16.2	12.2	-	Min. -60	40000 ± 1000	2100	- 20 ~ + 70	3
FOU16C12N02KPAN	PIN	Open Type	Dual Use	16	12	Min. 115	Min. -65	40000 ± 1000	2100	- 20 ~ + 70	2

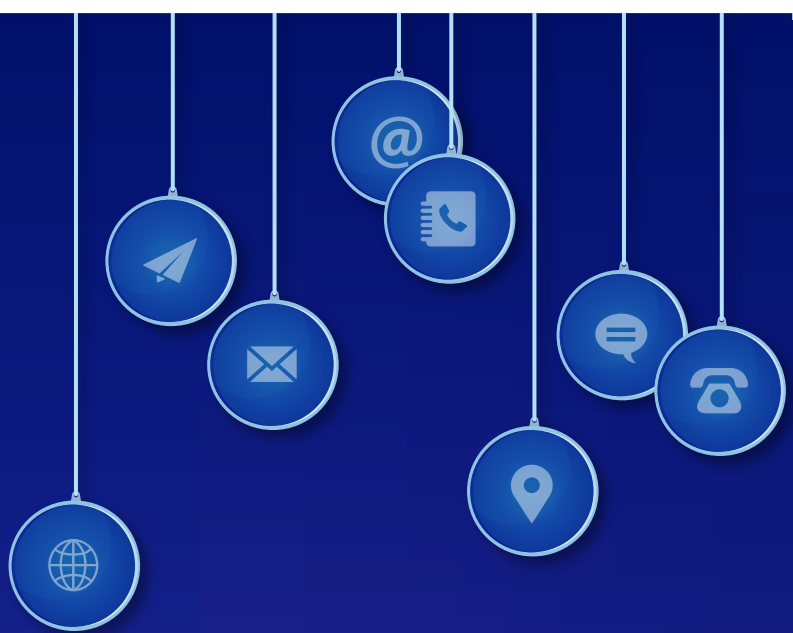
Ultrasonic Sensor

FKU Series (Shock Sensor)



Model Number	Terminal	Diameter (Ø mm)	Height (mm)	Output Voltage	Capacitance (pF)	Insulation Resistance (W)	Operating Temperature (°C)	Weight (g)
FKU24C04N04ALAN	L/Wire	24	4.5	40 mVp / G typ. (25 OC , 20.0 M W Load , 10 ~ 1000 Hz)	12000 ± 30 %	Min. 100 M	- 20 ~ + 70	24.6

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