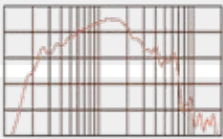


Our Development of Driver Units

TOA horn speaker driver units can be divided into several generations based on their diaphragm materials and constructions. From the use of dome-type diaphragms made of phenol-impregnated Conex in our early days of making diaphragm to switching the material to polyimide in 2004, we have models catering to all needs. In our most recent TU-660, ring-type diaphragm construction were used. Each of these various changes have aimed to improve sound quality (frequency characteristics), product quality, durability, and productivity. Now, the range for our types of driver units had widen to meet more needs.

				
	TU-15/25/35/50 (1978) ~TU-730/750 (Japan 2000–present) TU-630/650 (overseas 1998–2008) * TU-750 only	TU-730A/730AM (Japan 2004–present) TU-631/651 (overseas 2008–present)	Start of R&D on driver unit using ring-type diaphragms (2012)	TU-780 (Japan 2017–) TU-660 (overseas 2017–)
Diaphragm construction	A Dome	B Dome	C Ring	D Ring
Diaphragm materials	Conex (fabric), phenol (resin)	Polyimide	(multiple types studied)	Polyimide
High Frequency Characteristics			Aim: To improve high range performance by reducing divided vibration with harder structure	Adaptations to the phasing plug design further improve high range performance
Low Frequency Characteristics		Material improves low range performance	Issue: Harder structure degrades low range performance.	Adaptations to the bottom plate design improve low range performance
Quality & Durability	Phenol's susceptibility to humidity leads to deformation and greater chance of voice coil friction	Stable quality	Aim: To prevent voice coil friction by reducing divided vibration with harder structure	Improved upper cover heat dissipation, further improving durability
Productivity	Requires 1 month curing time	No curing time	No curing time	No curing time

TU-660 / TU-660M Specifications

DRIVER UNIT 60W TU-660

Ring-Type

*** New Model ***



	TU-660
Applicable Horns	TH-650, TH-652, TH-660
Rated Input	60 W
Rated Impedance	16Ω
Sensitivity	110 dB (1 W, 1 m) (When operated with JIS C 5504 standard horn.)
Frequency Response	150 Hz -8 kHz (When operated with JIS C 5504 standard horn.)
Dust/Water Protection	IP65 (When a driver is operated with a horn.)
Horn Coupling	1 -3/8 18 threads (inch screw)
Polarity	Hot: Black, Com: White
Operating Temperature	-20 °C to +55 °C (-4 °F to +131 °F) (no condensation)
Finish	Flange: Aluminum, gray, powder coating Rear cover: ABS resin, gray Screws: Stainless steel Speaker cable: Polyvinyl chloride insulated cabtyre cable (6 mm (0.24") in diameter, 600 mm (23.62") in length)
Dimensions	ø139 x 108 (D) mm (ø5.47" X 4.25")
Weight	2 kg (4.41 lb)
Option	Driver unit cover: UC-200A Matching transformer: TM-30, TM-60T

DRIVER UNIT 60W WITH TRANS FORMER TU-660M

Ring-Type

*** New Model ***



	TU-660M
Applicable Horns	TH-650, TH-652, TH-660
Rated Input	60 W
Line Voltage	100 V line or 70 V line
Rated Impedance	100 V line: 170 Ω (60 W), 330 Ω (30 W), 670 Ω (15 W) 70 V line: 83 Ω (60 W), 170 Ω (30 W), 330 Ω (15 W), 670 Ω (7.5 W)
Sensitivity	110 dB (1 W, 1 m) (When operated with JIS C 5504 standard horn.)
Frequency Response	150 Hz -8 kHz (When operated with JIS C 5504 standard horn.)
Dust/Water Protection	IP65 (When a driver is operated with a horn.)
Horn Coupling	1 -3/8 18 threads (inch screw)
Polarity	Hot: Black, Com: White
Operating Temperature	-20 °C to +55 °C (-4 °F to +131 °F) (no condensation)
Finish	Flange: Aluminum, gray, powder coating Rear cover: ABS resin, gray Screws: Stainless steel Speaker cable: Polyvinyl chloride insulated cabtyre cable (6 mm (0.24") in diameter, 600 mm (23.62") in length)
Dimensions	ø139 x 151 (D) mm (ø5.47" x 5.94")
Weight	2.7 kg (5.95 lb)
Option	Driver unit cover: UC-200A

TU-631 / TU-631M Specifications

DRIVER UNIT 30W TU-631

Dome-Type



	TU-631
Applicable Horns	TH-650, TH-652, TH-660
Rated Input	30 W
Rated Impedance	16 Ω
Sensitivity	110 dB (1 W, 1 m) (When operated with JIS C 5504 standard horn.)
Frequency Response	150 Hz -6 kHz (When operated with JIS C 5504 standard horn.)
Dust/Water Protection	IP65 (When a driver is operated with a horn.)
Horn Coupling	1 - 3/8 18 threads (inch screw)
Polarity	Hot: Black, Com: White
Operating Temperature	-20 °C to +60 °C (-4 °F to +140 °F) (no condensation)
Finish	Flange: Aluminum, gray, powder coating Rear cover: ABS resin, gray Screws: Stainless steel Speaker cable: Polyvinyl chloride insulated cabtyre cable (6 mm (0.24") in diameter, 600 mm (23.62") in length)
Dimensions	ø139 x 106 (D) mm (ø5.47" X 4.17")
Weight	1.4 kg (3.08 lb)
Option	Driver unit cover: UC-200A Matching transformer: TM-30T, TM-60T

DRIVER UNIT 30W WITH TRANS FORMER TU-631M

Dome-Type



	TU-631M
Applicable Horns	TH-650, TH-652, TH-660
Rated Input	30 W
Line Voltage	100 V line or 70 V line
Rated Impedance	100 V line: 330 Ω (30 W), 670 Ω (15 W), 1k Ω (10W), 2k Ω (5W) 70 V line: 170 Ω (30 W), 330 Ω (15 W), 670 Ω (7.5 W), 1k Ω (5W), 2k Ω (2.5W)
Sensitivity	110 dB (1 W, 1 m) (When operated with JIS C 5504 standard horn.)
Frequency Response	150 Hz -6 kHz (When operated with JIS C 5504 standard horn.)
Dust/Water Protection	IP65 (When a driver is operated with a horn.)
Horn Coupling	1 - 3/8 18 threads (inch screw)
Polarity	Hot: Black, Com: White
Operating Temperature	-20 °C to +60 °C (-4 °F to +140 °F) (no condensation)
Finish	Flange: Aluminum, gray, powder coating Rear cover: ABS resin, gray Screws: Stainless steel Speaker cable: Polyvinyl chloride insulated cabtyre cable (6 mm (0.24") in diameter, 600 mm (23.62") in length)
Dimensions	ø139 x 149 (D) mm (ø5.47" x 5.86")
Weight	1.9 kg (4.1 lb)
Option	Driver unit cover: UC-200A

TU-651 / TU-651M Specifications

DRIVER UNIT 50W TU-651

Dome-Type



	TU-651
Applicable Horns	TH-650, TH-652, TH-660
Rated Input	50 W
Rated Impedance	16 Ω
Sensitivity	110 dB (1 W, 1 m) (When operated with JIS C 5504 standard horn.)
Frequency Response	150 Hz -6 kHz (When operated with JIS C 5504 standard horn.)
Dust/Water Protection	IP65 (When a driver is operated with a horn.)
Horn Coupling	1 - 3/8 18 threads (inch screw)
Polarity	Hot: Black, Com: White
Operating Temperature	-20 °C to +55 °C (-4 °F to +131 °F) (no condensation)
Finish	Flange: Aluminum, gray, powder coating Rear cover: ABS resin, gray Screws: Stainless steel Speaker cable: Polyvinyl chloride insulated cabtyre cable (6 mm (0.24") in diameter, 600 mm (23.62") in length)
Dimensions	ø139 x 106 (D) mm (ø5.47" X 4.17")
Weight	2.0 kg (4.41 lb)
Option	Driver unit cover: UC-200A Matching transformer: TM-30T, TM-60T

DRIVER UNIT 50W WITH TRANS FORMER TU-651M

Dome-Type



	TU-651M
Applicable Horns	TH-650, TH-652, TH-660
Rated Input	50 W
Line Voltage	100 V line or 70 V line
Rated Impedance	100 V line: 200 Ω (50 W), 330 Ω (30 W), 670 Ω (15 W) 70 V line: 100 Ω (50 W), 200 Ω (25W), 330 Ω (15 W), 670 Ω (7.5 W)
Sensitivity	110 dB (1 W, 1 m) (When operated with JIS C 5504 standard horn.)
Frequency Response	150 Hz -6 kHz (When operated with JIS C 5504 standard horn.)
Dust/Water Protection	IP65 (When a driver is operated with a horn.)
Horn Coupling	1 - 3/8 18 threads (inch screw)
Polarity	Hot: Black, Com: White
Operating Temperature	-20 °C to +55 °C (-4 °F to +131 °F) (no condensation)
Finish	Flange: Aluminum, gray, powder coating Rear cover: ABS resin, gray Screws: Stainless steel Speaker cable: Polyvinyl chloride insulated cabtyre cable (6 mm (0.24") in diameter, 600 mm (23.62") in length)
Dimensions	ø139 x 149 (D) mm (ø5.47" x 5.86")
Weight	2.7 kg (5.95 lb)
Option	Driver unit cover: UC-200A

TU-632 / TU-632M Specifications

DRIVER UNIT 30W TU-632

Dome-Type



	TU-632
Applicable Horns	TH-650, TH-652, TH-660
Rated Input	30 W
Rated Impedance	16 Ω
Sensitivity	110 dB (1 W, 1 m) (When operated with JIS C 5504 standard horn.)
Frequency Response	150 Hz -6 kHz (When operated with JIS C 5504 standard horn.)
Dust/Water Protection	IP65 (When a driver is operated with a horn.)
Horn Coupling	1 - 3/8 18 threads (inch screw)
Polarity	Hot: Black, Com: White
Operating Temperature	-20 °C to +55 °C (-4 °F to +131 °F) (no condensation)
Finish	Flange: Aluminum, white, powder coating Rear cover: HIPS, white Screws: Stainless steel Speaker cable: Polyvinyl chloride insulated cabtyre cable (6 mm (0.24") in diameter, 450 mm (17.72") in length), white
Dimensions	ø139 x 106 (D) mm (ø5.47" X 4.17")
Weight	1.5 kg (3.31 lb)
Option	Driver unit cover: UC-200A Matching transformer: TM-30T, TM-60T

DRIVER UNIT 30W WITH TRANS FORMER TU-632M

Dome-Type



	TU-632M
Applicable Horns	TH-650, TH-652, TH-660
Rated Input	30 W
Line Voltage	100 V line or 70 V line
Rated Impedance	100 V line: 330 Ω (30 W), 670 Ω (15 W), 1k Ω (10W), 2k Ω (5W) 70 V line: 170 Ω (30 W), 330 Ω (15 W), 670 Ω (7.5 W), 1k Ω (5W), 2k Ω (2.5W)
Sensitivity	110 dB (1 W, 1 m) (When operated with JIS C 5504 standard horn.)
Frequency Response	150 Hz -6 kHz (When operated with JIS C 5504 standard horn.)
Dust/Water Protection	IP65 (When a driver is operated with a horn.)
Horn Coupling	1 - 3/8 18 threads (inch screw)
Polarity	Hot: Black, Com: White
Operating Temperature	-20 °C to +55 °C (-4 °F to +131 °F) (no condensation)
Finish	Flange: Aluminum, white, powder coating Rear cover: HIPS, white Screws: Stainless steel Speaker cable: Polyvinyl chloride insulated cabtyre cable (6 mm (0.24") in diameter, 450 mm (17.72") in length), white
Dimensions	ø139 x 149 (D) mm (ø5.47" x 5.87")
Weight	1.8 kg (3.97 lb)
Option	Driver unit cover: UC-200A

TU-652 / TU-652M Specifications

DRIVER UNIT 50W TU-652

Dome-Type



	TU-652
Applicable Horns	TH-650, TH-652, TH-660
Rated Input	50 W
Rated Impedance	16 Ω
Sensitivity	110 dB (1 W, 1 m) (When operated with JIS C 5504 standard horn.)
Frequency Response	150 Hz -6 kHz (When operated with JIS C 5504 standard horn.)
Dust/Water Protection	IP65 (When a driver is operated with a horn.)
Horn Coupling	1 - 3/8 18 threads (inch screw)
Polarity	Hot: Black, Com: White
Operating Temperature	-20 °C to +55 °C (-4 °F to +131 °F) (no condensation)
Finish	Flange: Aluminum, white, powder coating Rear cover: HIPS, white Screws: Stainless steel Speaker cable: Polyvinyl chloride insulated cabtyre cable (6 mm (0.24") in diameter, 450 mm (17.72") in length), white
Dimensions	ø139 x 106 (D) mm (ø5.47" X 4.17")
Weight	2 kg (4.41 lb)
Option	Driver unit cover: UC-200A Matching transformer: TM-30T, TM-60T

DRIVER UNIT 50W WITH TRANS FORMER TU-652M

Dome-Type



	TU-652M
Applicable Horns	TH-650, TH-652, TH-660
Rated Input	50 W
Line Voltage	100 V line or 70 V line
Rated Impedance	100 V line: 200 Ω (50 W), 330 Ω (30 W), 670 Ω (15 W) 70 V line: 100 Ω (50 W), 200 Ω (25 W), 330 Ω (15 W), 670 Ω (7.5 W)
Sensitivity	110 dB (1 W, 1 m) (When operated with JIS C 5504 standard horn.)
Frequency Response	150 Hz -6 kHz (When operated with JIS C 5504 standard horn.)
Dust/Water Protection	IP65 (When a driver is operated with a horn.)
Horn Coupling	1 - 3/8 18 threads (inch screw)
Polarity	Hot: Black, Com: White
Operating Temperature	-20 °C to +55 °C (-4 °F to +131 °F) (no condensation)
Finish	Flange: Aluminum, white, powder coating Rear cover: HIPS, white Screws: Stainless steel Speaker cable: Polyvinyl chloride insulated cabtyre cable (6 mm (0.24") in diameter, 450 mm (17.72") in length), white
Dimensions	ø139 x 149 (D) mm (ø5.47" x 5.87")
Weight	2.7 kg (5.95 lb)
Option	Driver unit cover: UC-200A

TH-650 / TH-652 / TH-660 Specifications

REFLEX HORN SPEAKER TH-650



	TH-650
Applicable Drivers	TU-631/631M, TU-632/632M, TU-651/651M. TU-652/652M, TU-660/660M
Sensitivity	110 dB (1 W, 1 m) (When operated with a driver.)
Frequency Response	200 Hz - 6 kHz (When operated with a driver.)
Dust/Water Protection	IP65 (When a driver is operated with a driver.)
Driver Coupling	1 - 3/8 18 threads (inch screw)
Operating Temperature	-20 °C to +55 °C (-4 °F to +131 °F) (no condensation)
Finish	Horn flare and flange: Aluminum, off-white, powder coating Reflector horn: ABS resin, off-white Bracket holder: Aluminum, gray, powder coating Bracket: Steel, gray, powder coating Screws and bolts: Stainless steel
Dimensions	ø500 x 394 (D) mm (ø19.68" X 15.51")
Weight	2.9 kg (6.39 lb)

REFLEX HORN SPEAKER TH-652



	TH-652
Applicable Drivers	TU-631/631M, TU-632/632M, TU-651/651M. TU-652/652M, TU-660/660M
Sensitivity	110 dB (1 W, 1 m) (When operated with a driver.)
Frequency Response	200 Hz - 6 kHz (When operated with a driver.)
Dust/Water Protection	IP65 (When a driver is operated with a driver.)
Driver Coupling	1 - 3/8 18 threads (inch screw)
Operating Temperature	-20 °C to +55 °C (-4 °F to +131 °F) (no condensation)
Finish	Horn flare and flange: Aluminum, white, powder coating Reflector horn: HIPS, white Bracket: Steel, white, powder coating Screws and bolts: Stainless steel
Dimensions	ø500 x 357 (D) mm (ø19.69" X 14.06")
Weight	2.7 kg (5.95 lb)

REFLEX HORN SPEAKER TH-660



	TH-660
Applicable Drivers	TU-631/631M, TU-632/632M, TU-651/651M. TU-652/652M, TU-660/660M
Sensitivity	110 dB (1 W, 1 m) (When operated with a driver.)
Frequency Response	200 Hz - 6 kHz (When operated with a driver.)
Dust/Water Protection	IP65 (When a driver is operated with a driver.)
Driver Coupling	1 - 3/8 18 threads (inch screw)
Operating Temperature	-20 °C to +55 °C (-4 °F to +131 °F) (no condensation)
Finish	Horn flare and flange: Aluminum, off-white, powder coating Reflector horn: ABS resin, off-white Bracket holder: Aluminum, gray, powder coating Bracket: Steel, gray, powder coating Screws and bolts: Stainless steel
Dimensions	ø600 x 425 (D) mm (ø23.62" X 16.73")
Weight	3.6 kg (7.93 lb)

DH-110 / DH-120 Specifications

STARIGHT HORN SPEAKER DH-110



(DHA-11 + DH-11B)

	DH-110
Applicable Drivers	TU-631/631M, TU-632/632M, TU-651/651M. TU-652/652M, TU-660/660M
Sensitivity	110 dB (1 W, 1 m) (When operated with a driver.)
Frequency Response	180 Hz - 6 kHz (When operated with a driver.)
Driver Coupling	1 - 3/8 18 threads (inch screw)
Variable Installation Angle	Vertical: +10°, -20° (when locally procured mounting bracket is used)
Finish	Horn A: Aluminum, ivory, powder coating L-shaped Adapter and Horn C: Aluminum, ivory, powder coating Bracket: Steel plate, ivory, powder coating
Dimensions	ø518 x 968 (D) mm (ø20.40" X 38.11")
Weight	5.3 kg (11.69 lb)
Accessory	Stainless steel bolt for assembly x 1 set, Gasket x 1 set, Anti-bird net x 1 set

STARIGHT HORN SPEAKER DH-120



(DHA-11 + DH-12B)

	DH-120
Applicable Drivers	TU-631/631M, TU-632/632M, TU-651/651M. TU-652/652M, TU-660/660M
Sensitivity	110 dB (1 W, 1 m) (When operated with a driver.)
Frequency Response	180 Hz - 6 kHz (When operated with a driver.)
Driver Coupling	1 - 3/8 18 threads (inch screw)
Variable Installation Angle	Vertical: +10°, -20° (when locally procured mounting bracket is used)
Finish	Horn A: Aluminum, ivory, powder coating L-shaped Adapter and Adapter: Aluminum, ivory, powder coating Bracket: Steel plate, ivory, powder coating
Dimensions	ø518 x 884 (D) mm (ø20.40" X 34.80")
Weight	5.3 kg (11.69 lb)
Accessory	Stainless steel bolt for assembly x 1 set, Gasket x 1 set, Anti-bird net x 1 set

Diaphragms & Driver Unit Cover



	Dome Diaphragm DG-30DB
Rated Input	50W
Rated Impedance	16Ω
Sensitivity	110dB (1W, 1m)
Frequency Response	150Hz - 6kHz
Applicable Driver Unit	TU-631/631M, TU-632/632M, TU-651/651M. TU-652/652M



	Ring Diaphragm
Rated Input	60W
Rated Impedance	16Ω
Sensitivity	110dB (1W, 1m)
Frequency Response	150Hz - 8kHz
Applicable Driver Unit	TU-660 / 660M



	UC-200A
Finish	Unit Cover: Glass fiber mixed unsaturated polyester resin, ivory Cover Fixing Screw: Stainless Steel
Weight	590g
Accessory	Washer x 2, Throat gasket x 1
Applicable Driver Unit	TU-631/631M, TU-632/632M, TU-651/651M. TU-652/652M, TU-660/TU-660M
Applicable Horn	TH-650, TH-660, TH-652, DH-110, DH-120

