

Mute detector IC

BA3703F

The BA3703F is a mute detector designed for car stereos. It features low external parts count, and can detect mute whether the tape is playing or being fast-forwarded. It features a wide power supply voltage range (6.0V to 16.0V) and is ideal for use in car stereos and other audio equipment.

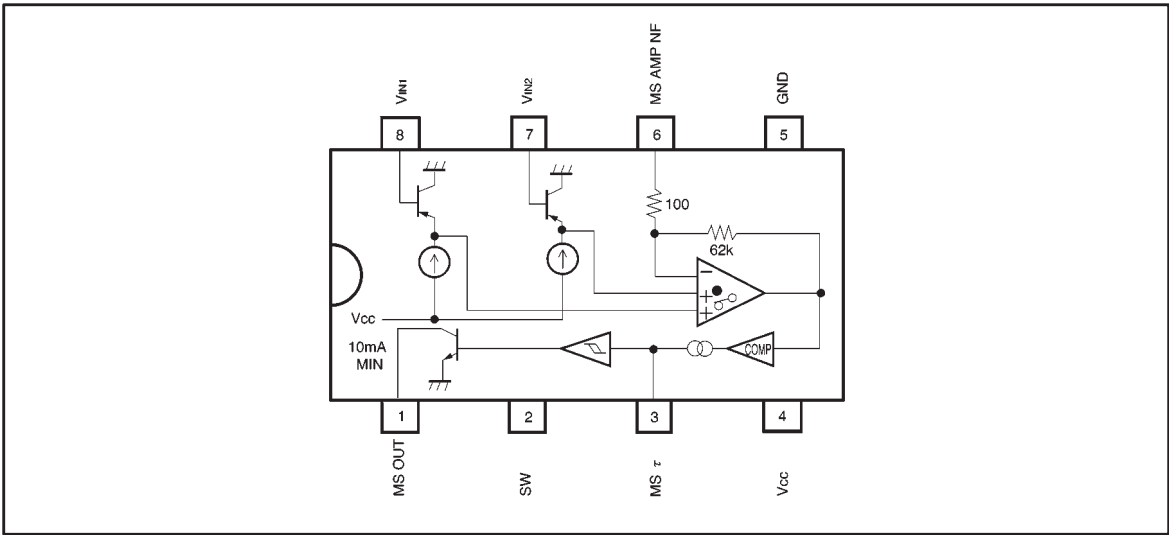
●Application

Car stereos

●Features

- 1) Can detect mute during playback and fast-forward.
- 2) The signal detect and mute detect times can be set using attached components.
- 3) Wide operating voltage range (6.0V to 16.0V).

●Block diagram



●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Power supply voltage	V _{CC}	18	V
Power dissipation	P _d	550*	mW
Operating temperature	T _{opr}	−30~+85	°C
Storage temperature	T _{stg}	−55~+125	°C

* When mounted on a 70mm×70mm×1.6mm glass epoxy board.
Reduced by 5.5mW for each increase in Ta of 1°C over 25°C.

●Recommended operating conditions (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	V _{CC}	6.0	—	16.0	V

●Electrical characteristics (unless otherwise noted, $T_a = 25^\circ\text{C}$, $V_{CC} = 9\text{V}$, $V_{DD} = 5\text{V}$, $f = 1\text{kHz}$, measurement circuit : Fig. 1)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Quiescent current	I _Q	—	0.85	2.0	mA	V _{2PIN} =0V, V _{IN} =0V _{rms}
Song detection level 1	V _{MS1}	−55	−52	−49	dBm	V _{2PIN} =0V, pin 8 input voltage
Song detection level 2	V _{MS2}	−55	−52	−49	dBm	V _{2PIN} =5V, pin 7 input voltage
Song detection time* ¹	T ₁	7.7	11	14.3	ms	C τ = 1 μ F, R τ = 33k Ω V _{IN} =0V _{rms} →−40dBm
Mute detection time* ²	T ₂	30	40	50	ms	C τ = 1 μ F, R τ = 33k Ω V _{IN} =−40dBm→0V _{rms}
Control pin high level	V _{THH}	4.2	—	—	V	—
Control pin low level	V _{THL}	—	—	1.4	V	—
Control pin input current	I _{IN}	—	100	200	μ A	V _{2PIN} =5V
Control pin output current	I _{OUT}	—	140	270	μ A	V _{2PIN} =0V
MS OUT maximum input current	I _{MSO}	10	—	—	mA	V _{3PIN} ≥4.2V
MS OUT leakage current	I _{MS}	—	0.5	2.0	μ A	—

*1 The time from when VIN is input until MS OUT goes low.

*2 The time from when V_{IN} becomes $V_{IN} = 0$ until MS OUT goes high.

●Measurement circuit

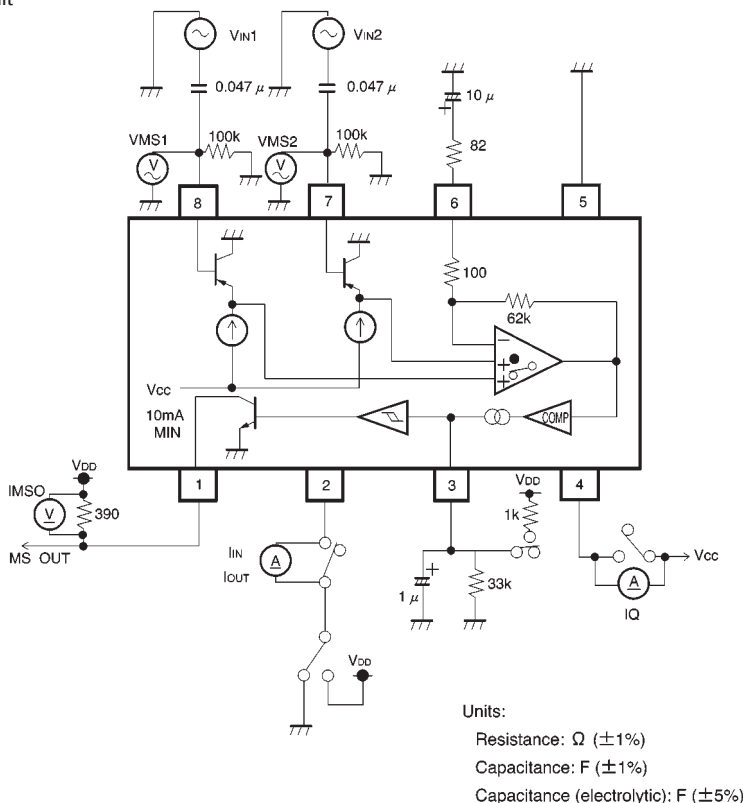


Fig. 1

●Application example

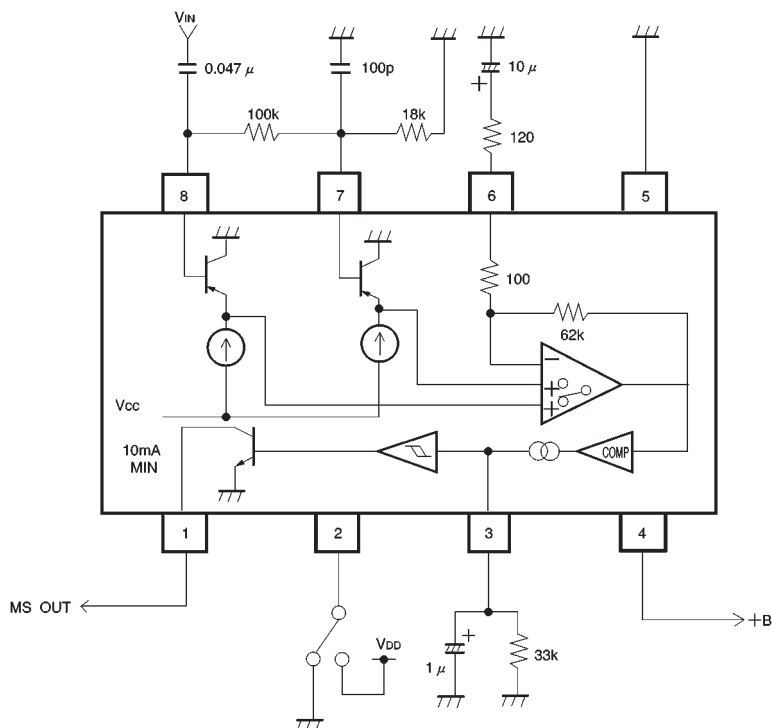


Fig. 2

●Electrical characteristic curves

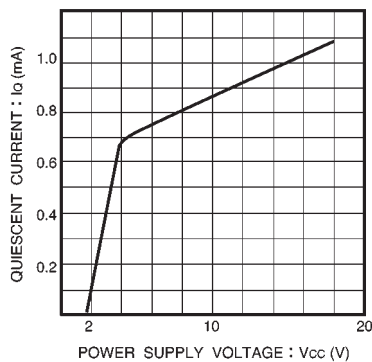


Fig. 3 Quiescent current vs. power supply voltage

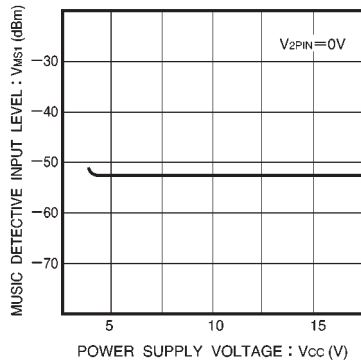


Fig. 4 Song detection input level 1 vs. power supply voltage

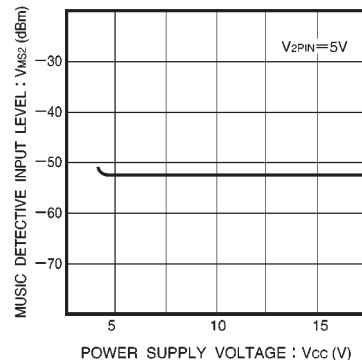


Fig. 5 Song detection input level 2 vs. power supply voltage

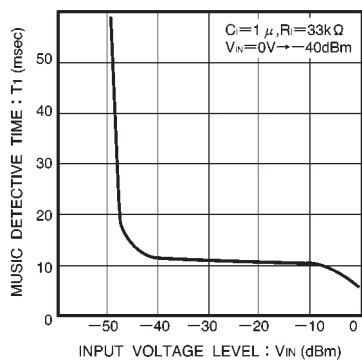


Fig. 6 Song detection time vs. input voltage level

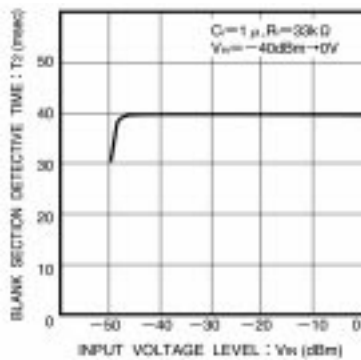


Fig. 7 Mute detection time vs. input voltage level

● External dimensions (Units: mm)

