Mute detector IC

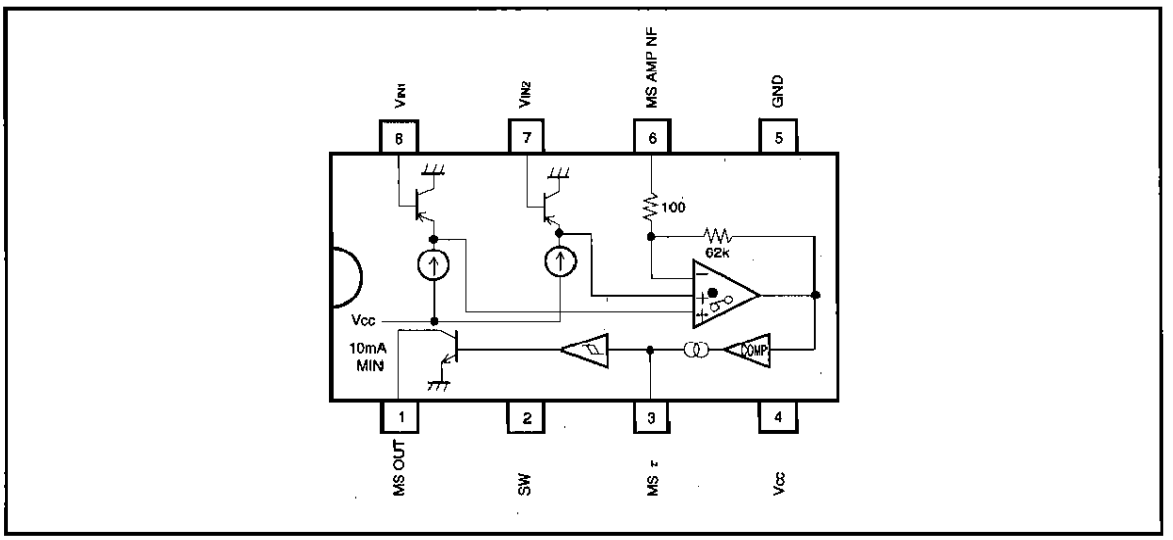
BA3703F

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 external components.
3) Wide power supply voltage range (6.0V to 16.0V).

●Block diagram



●Absolute maximum ratings (Ta = 25℃)

Parameter	Symbol	Limits	Unit
Supply voltage	Vcc	18	V
Power dissipation	Pd	550*	mW
Operating temperature	Topr	−30~85	℃
Storage temperature	Tstg	−55~125	℃

* Reduced by 5.5mW for each increase in Ta of 1°C over 25°C.

●Recommended power supply voltage range (Ta = 25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	Vcc	6.0	—	16.0	V

●Electrical characteristics (unless otherwise indicated, Ta = 25℃, V_{CC} = 9V, V_{DD} = 5V, f = 1kHz, 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}=0Vrms
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	msec	$C\tau$ =1 μF, $R\tau$ =33kΩ V_{IN}=0Vrms→−40dBm
Mute detection time *2	T_2	30	40	50	msec	$C\tau$ =1 μF, $R\tau$ =33kΩ V_{IN}=−40dBm→0Vrms
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	μA	V_{2PIN}=5V
Control pin output current	I_{out}	—	140	270	μA	V_{2PIN}=0V
MS OUT max. input current	I_{MSO}	10	—	—	mA	V_{3PIN}≧4.2V
MS OUT leak current	I_{MS}	—	0.5	2.0	μA	

*1 The time from when V_{IN} 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

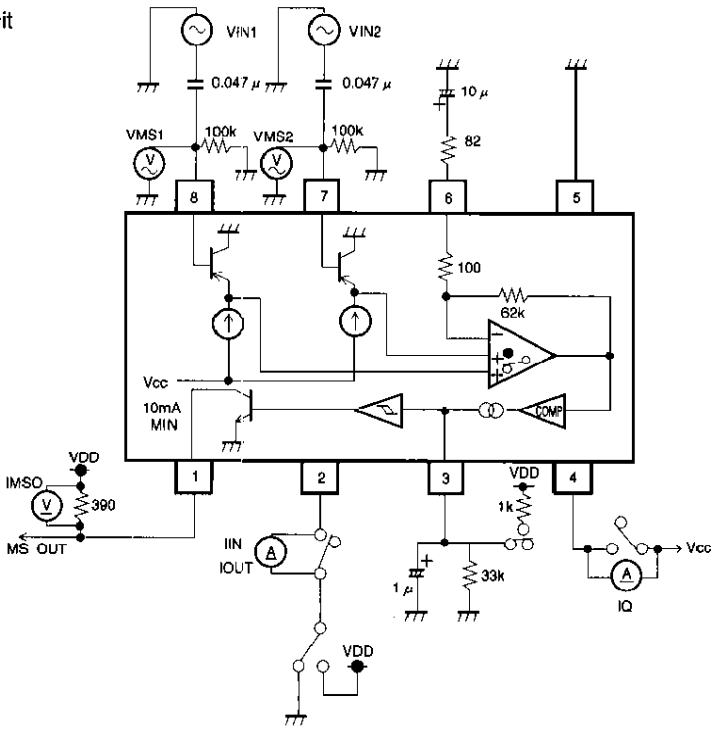


Fig. 1

Units:
Resistance: Ω (±1%)
Capacitance: F (±1%)
Capacitance (electrolytic): F (±5%)

●Application example

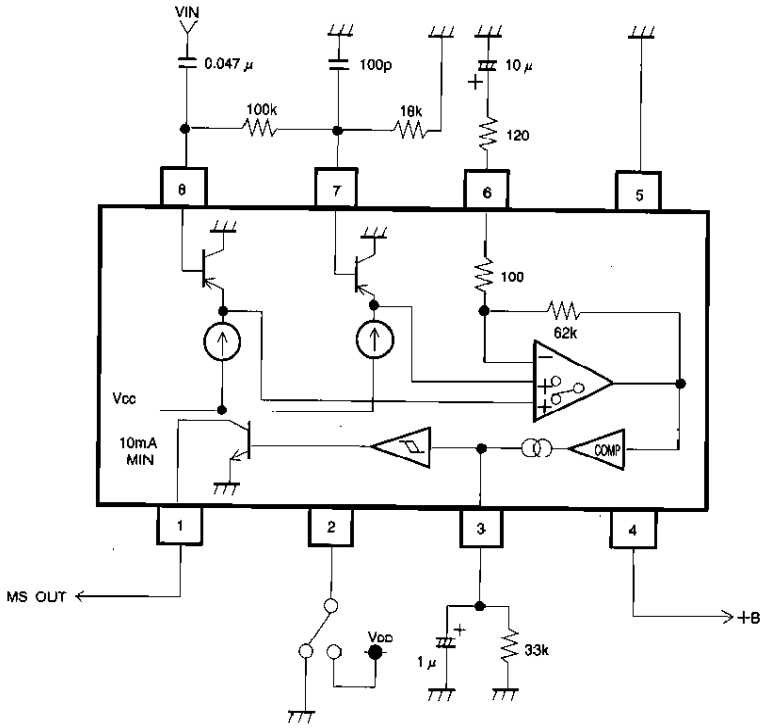


Fig. 2

●Electrical characteristic curves

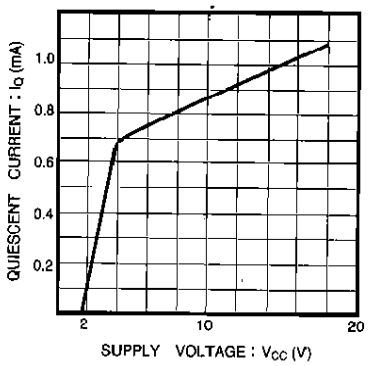


Fig. 3 Quiescent current vs. supply voltage

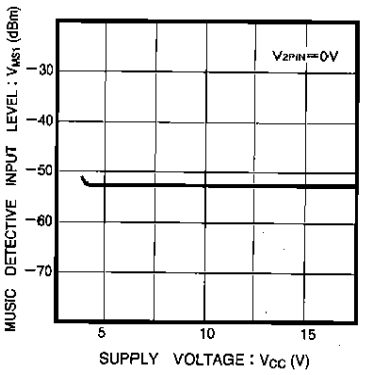


Fig. 4 Song detection input level 1 vs. supply voltage

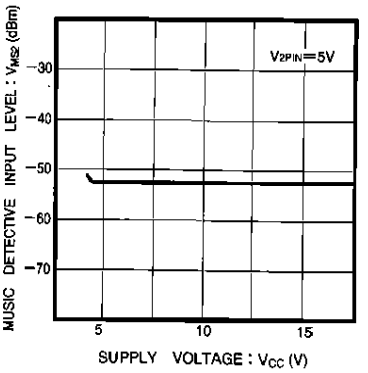


Fig. 5 Song detection input level 2 vs.supply voltage

●Electrical characteristic curves

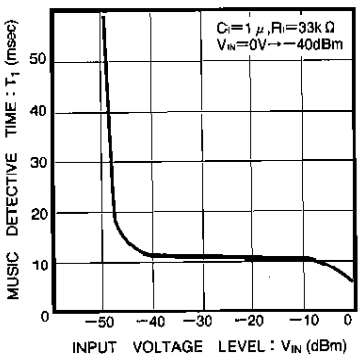


Fig. 6 Song detection time vs. input voltage level

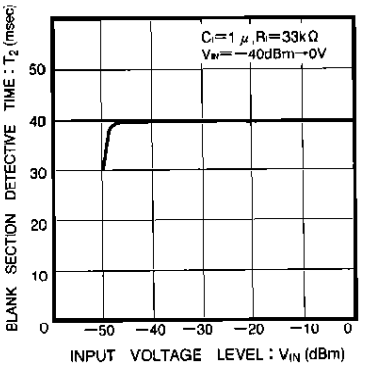
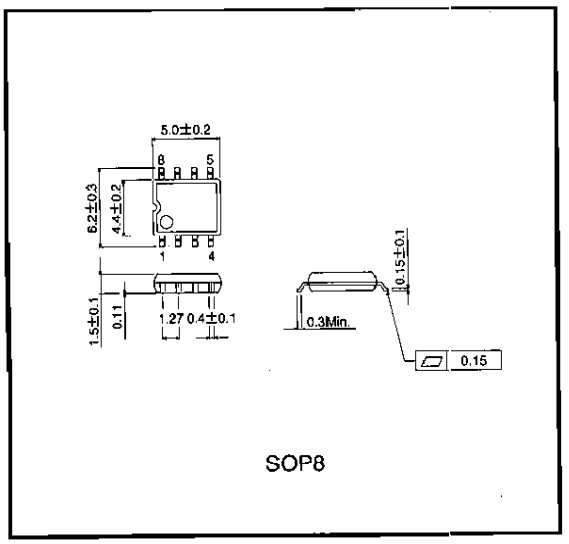


Fig. 7 Mute detection time vs. input voltage level

●External dimensions (Unit: mm)



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