

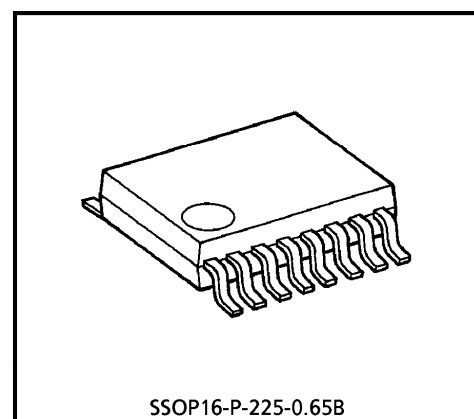
TA8145FN

STEREO HEADPHONE AMPLIFIER (1.5V USE)

The TA8145FN is a stereo headphone power amplifier IC, which is developed for low voltage operation (1.5V). It is especially suitable for a stereo headphone cassette player.

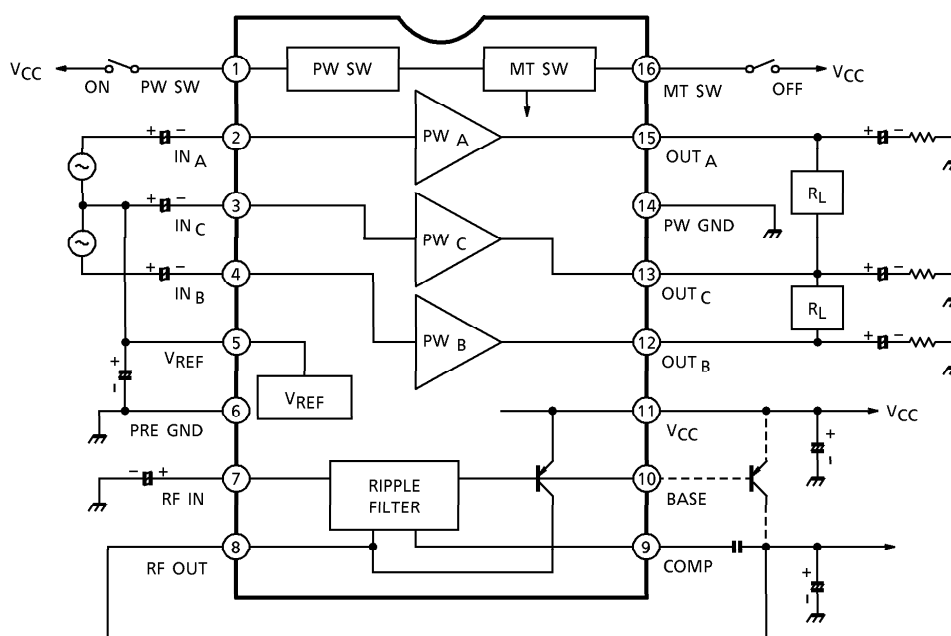
FEATURES

- OCL (Output Condenser-Less)
- Built-in a ripple filter
- $G_V = 22\text{dB}$ (Typ.)
- Output power : $P_O = 8\text{mW}$ (Typ.)
($V_{CC} = 1.5\text{V}$, $R_L = 16\Omega$, $\text{THD} = 10\%$, $T_a = 25^\circ\text{C}$)
- Built-in a power switch.
- Built-in a power amplifier mute.
- Excellent ripple rejection ratio : $\text{RR} = 52\text{dB}$ (Typ.)
- Low noise : $V_{no} = 27\mu\text{V}_{\text{rms}}$ (Typ.)
- Operating supply voltage range ($T_a = 25^\circ\text{C}$)
 $V_{CC(\text{opr})} = 0.9 \sim 2.2\text{V}$



Weight : 0.09g (Typ.)

BLOCK DIAGRAM

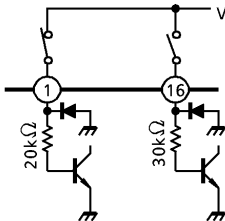
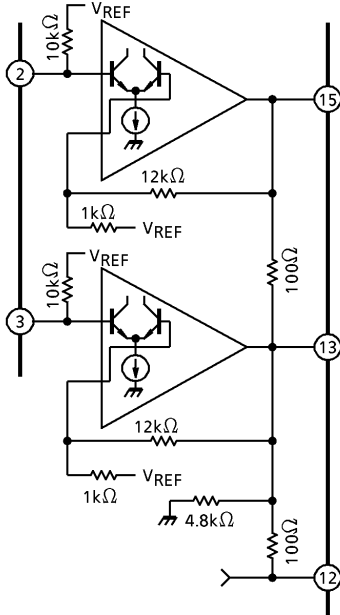
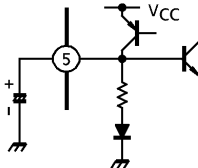
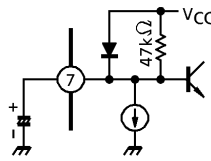


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TERMINAL EXPLANATION

TERMINAL VOLTAGE : Typical terminal voltage at no signal with test circuit ($V_{CC} = 1.2V$, $T_a = 25^\circ C$)

TERMINAL		FUNCTION	INTERNAL CIRCUIT	TERMINAL VOLTAGE (V)
No.	NAME			
1	PW SW	Power on / off switch. [V_{CC} : Power on GND / OPEN : Power off		—
16	MT SW	Muting switch. [V_{CC} : Muting off GND / OPEN : Muting on		—
2	IN _A	Input of power amplifier		0.75
4	IN _B			0.6
15	OUT _A	Output of power amplifier		0.75
12	OUT _B			0.6
3	IN _C	Input of center amplifier		0.75
13	OUT _C	Output of center amplifier		0.6
5	V _{REF}	Reference voltage		0.75
6	PRE GND	—	—	0
7	RF IN	Ripple filter terminal		1.2

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage		V _{CC}	4.5	V
Output Current	Power amplifier	I _O (peak)	60	mA
	Ripple Filter (Built-in transistor)	I _{RF}	5	
Power Dissipation (Note)		P _D	400	mW
Operating Temperature		T _{opr}	-25~75	°C
Storage Temperature		T _{stg}	-55~150	

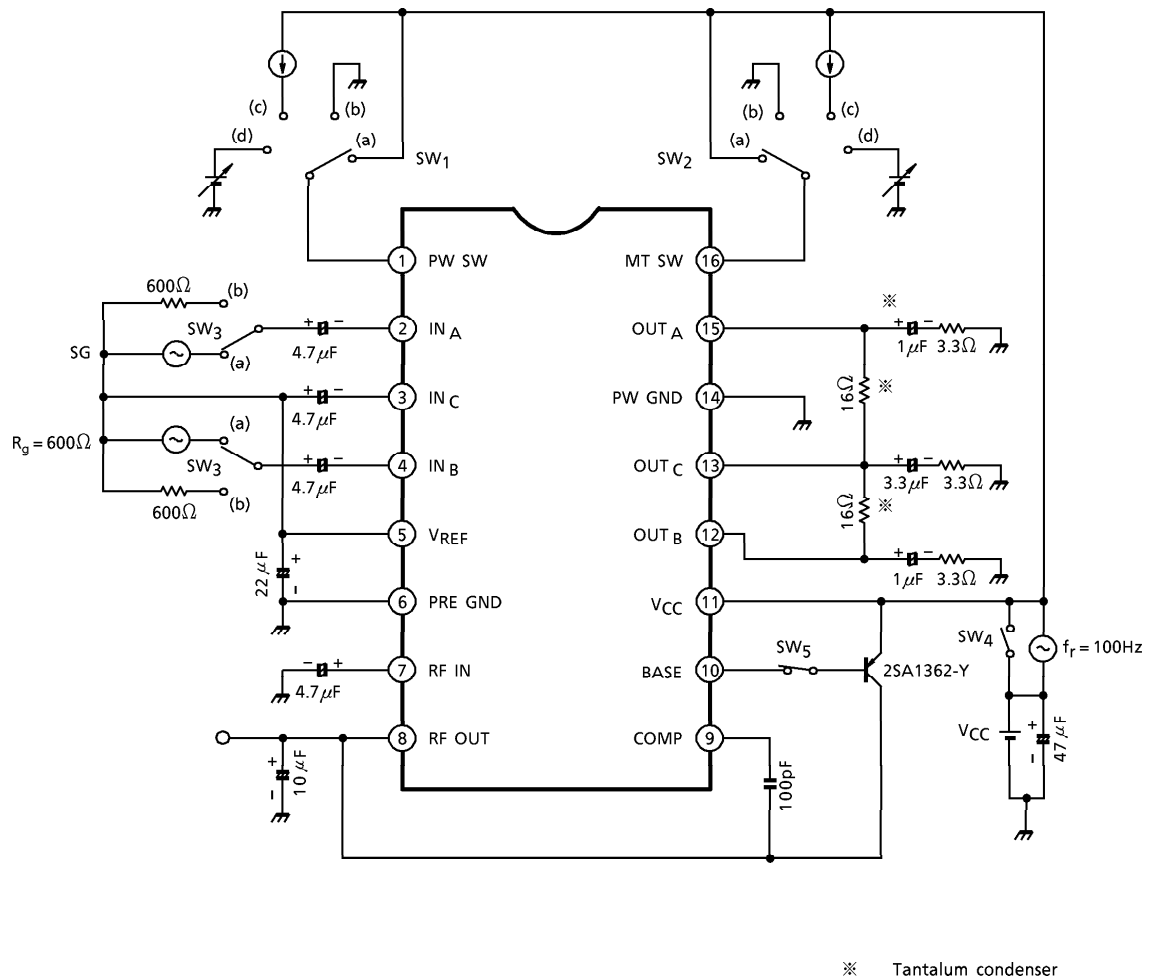
Note : Derated above Ta = 25°C in the proportion of 3.2mW/°C.

ELECTRICAL CHARACTERISTICS

Unless otherwise specified. V_{CC} = 1.2V, R_L = 16Ω, R_g = 600Ω, f = 1kHz, Ta = 25°C
 SW₁ : a, SW₂ : a, SW₃ : a, SW₄ : ON, SW₅ : ON

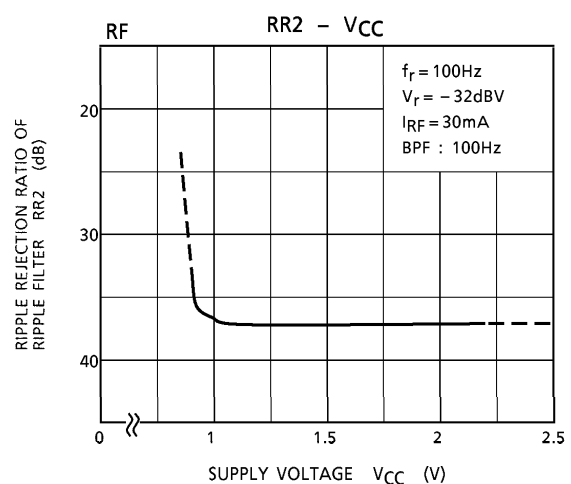
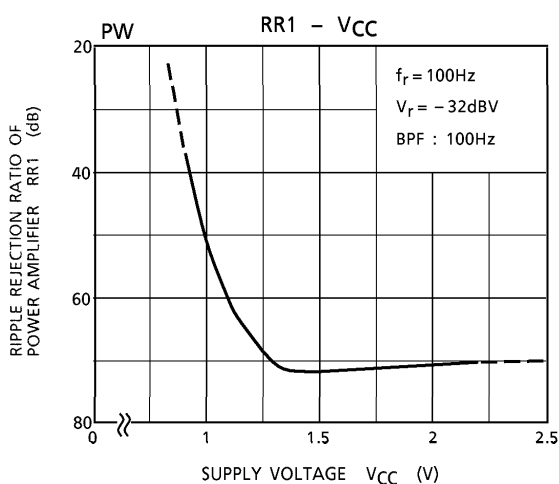
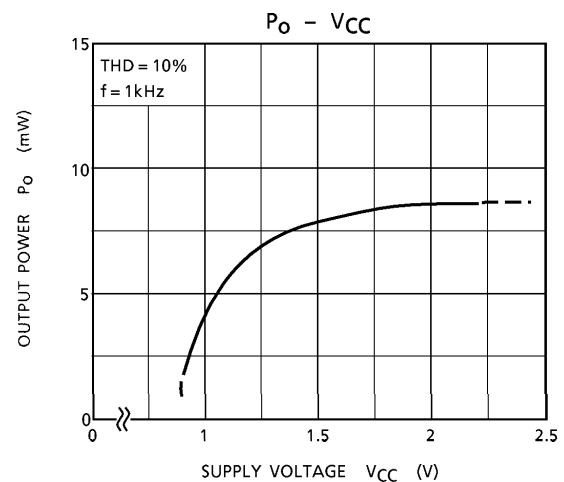
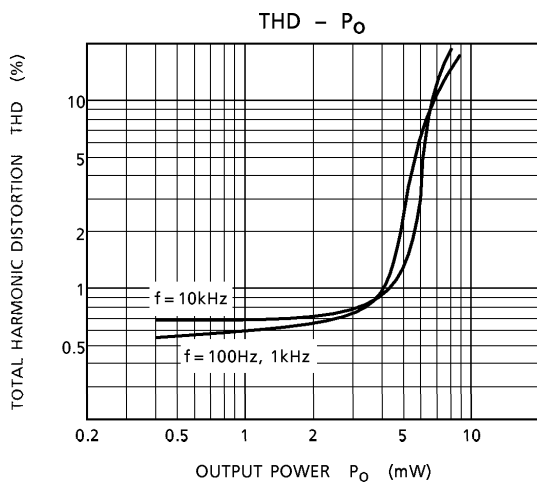
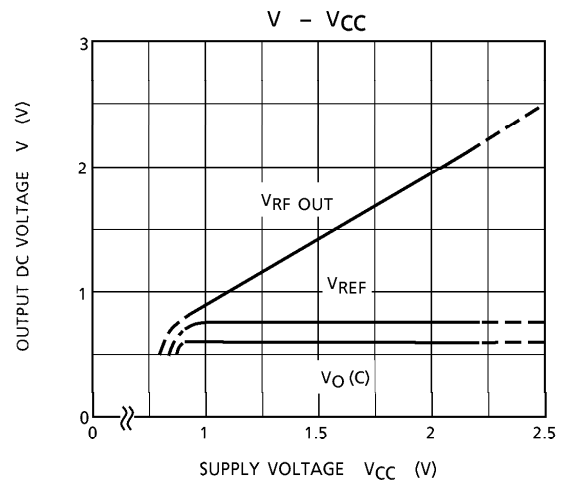
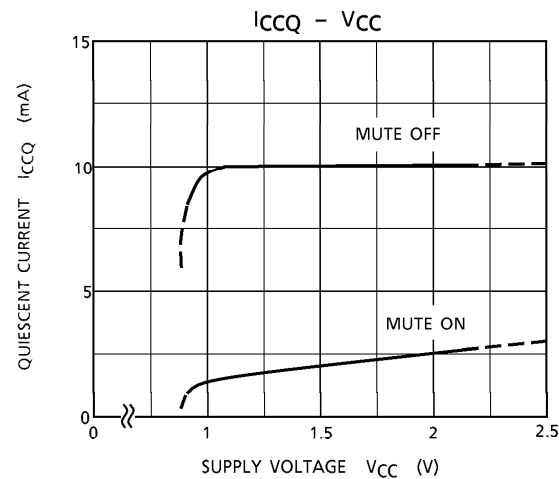
CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current		I _{CCQ1}	—	Power off, SW ₁ : b, SW ₂ : b	—	0.1	5	μA
		I _{CCQ2}	—	Mute on, SW ₂ : b	—	1.6	3	mA
		I _{CCQ3}	—	V _{in} = 0, SW ₃ : b	—	10	14	
Power Amplifier	Voltage Gain	G _V	—	V _O (A) = V _O (B) = -22dBV	20	22	24	dB
	Channel Balance	CB	—	V _O = -22dBV	—	0	1.5	
	Output Power	P _O	—	V _{CC} = 1.5V, THD = 10% V _{in} (A) = V _{in} (B)	5	8	—	mW
	Total Harmonic Distortion	THD	—	V _{CC} = 1V P _O (A) = P _O (B) = 0.5mW	—	0.7	1.5	%
	Output Noise Voltage	V _{no}	—	SW ₃ : b, BPF = 20Hz~20kHz	—	27	40	μV _{rms}
	Cross Talk	CT	—	V _O = -22dBV	31	37	—	
	Ripple Rejection Ratio	RR1	—	V _{CC} = 1V, f _r = 100Hz V _r = -32dBV, SW ₄ : OPEN	45	52	—	dB
	Muting Attenuation	ATT	—	V _O = -22dBV, SW ₂ : a→b	65	80	—	
Ripple Filter Output Voltage		V _{RF}	—	V _{CC} = 1V, I _{RF} = 30mA	0.86	0.9	—	V
Ripple Rejection Ratio Of Ripple Filter Output		RR2	—	V _{CC} = 1V, I _{RF} = 30mA f _r = 100Hz, V _r = -32dBV SW ₄ : OPEN	30	37	—	dB
Power Switch	Power On Current	I ₁	—	V _{CC} = 0.9V, V ₅ ≥ 0.5V, SW ₁ : c	5	—	—	μA
	Power Off Voltage	V ₁	—	V _{CC} = 0.9V, V ₅ ≤ 0.1V SW ₁ : d	0	—	0.3	V
Mute Switch	Mute Off Current	I ₁₆	—	V _{CC} = 0.9V, V ₁₃ ≥ 0.3V, SW ₂ : c	5	—	—	μA
	Mute On Voltage	V ₁₆	—	V _{CC} = 0.9V, V ₁₃ ≤ 0.3V SW ₂ : d	0	—	0.3	V

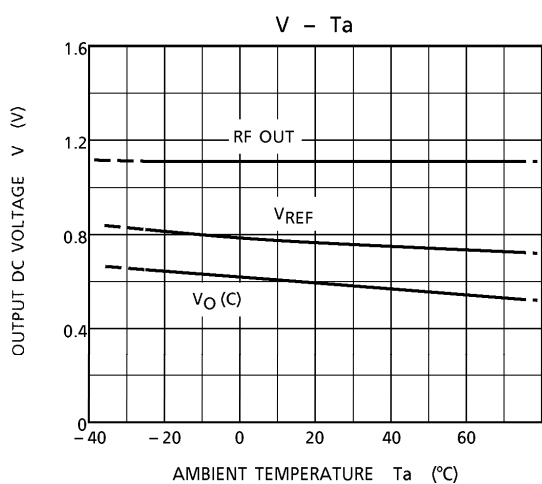
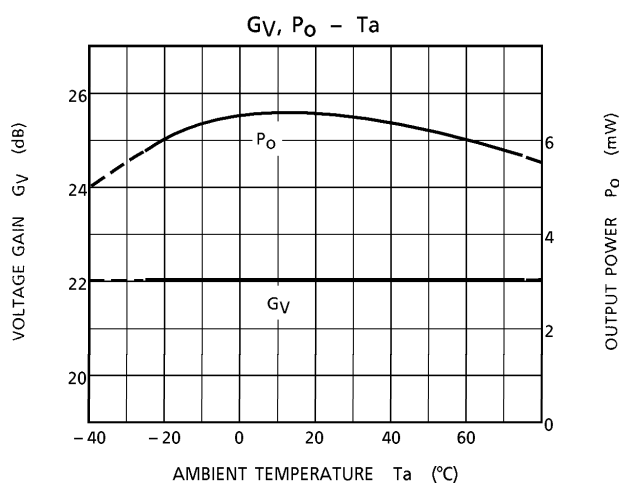
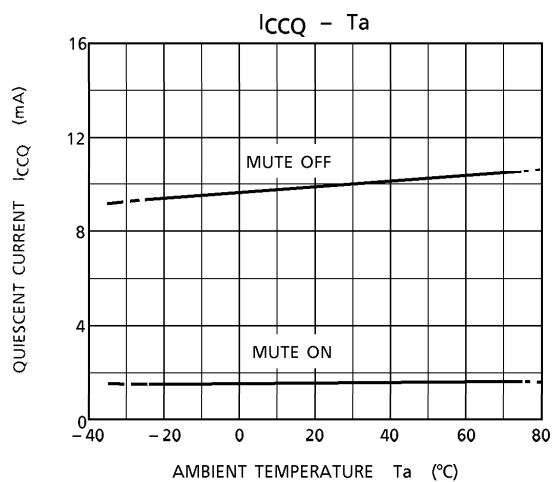
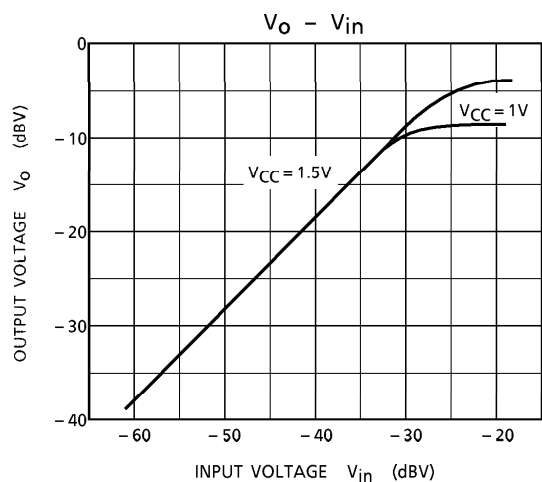
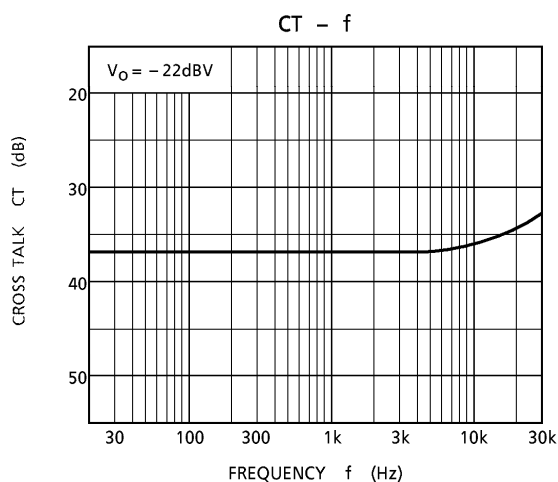
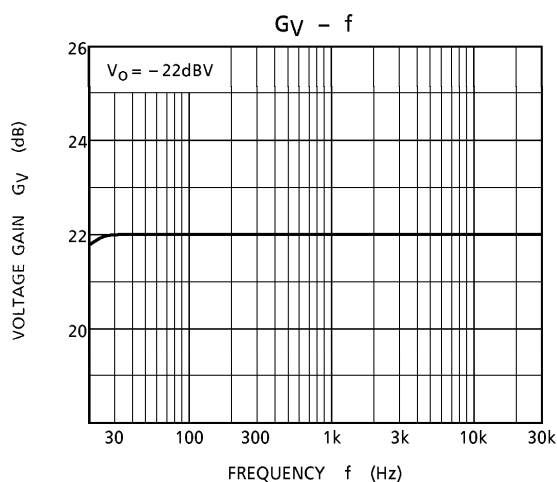
TEST CIRCUIT



CHARACTERISTICS CURVES

Unless otherwise specified, $V_{CC} = 1.2V$, $R_g = 600\Omega$, $f = 1kHz$, $R_L = 16\Omega$, $T_a = 25^\circ C$

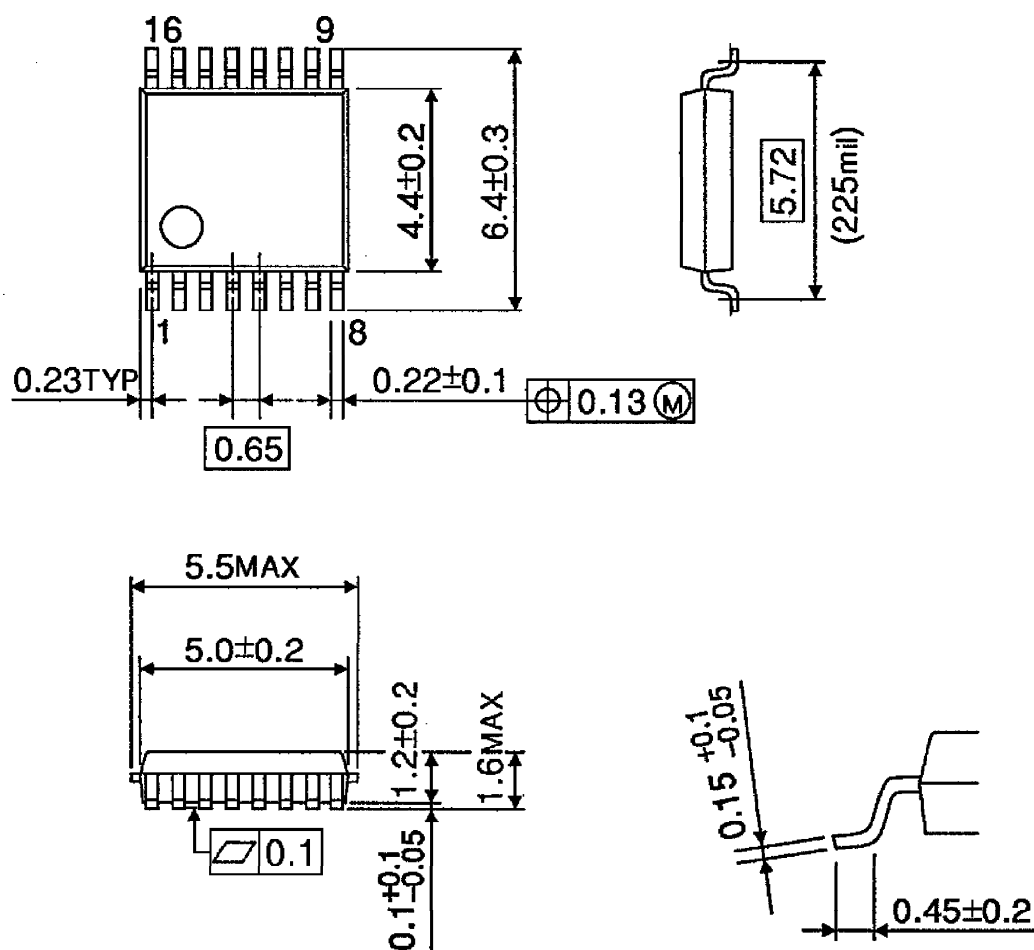




OUTLINE DRAWING

SSOP16-P-225-0.65B

Unit : mm



Weight : 0.09g (Typ.)