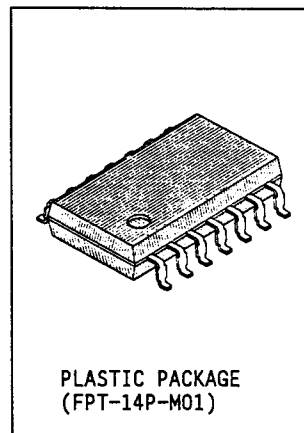


MB43468

QUAD PREAMPLIFIER IC FOR VERTEX TIME PROJECTION CHAMBER

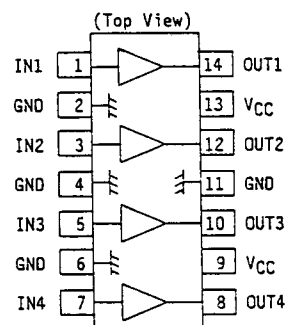
The Fujitsu MB43468 is a Quad preamplifier IC designed for Vertex Time Projection Chamber.

The basic circuit is a cascade amplifier with feedback.



PLASTIC PACKAGE
(FPT-14P-M01)

PIN ASSIGNMENT



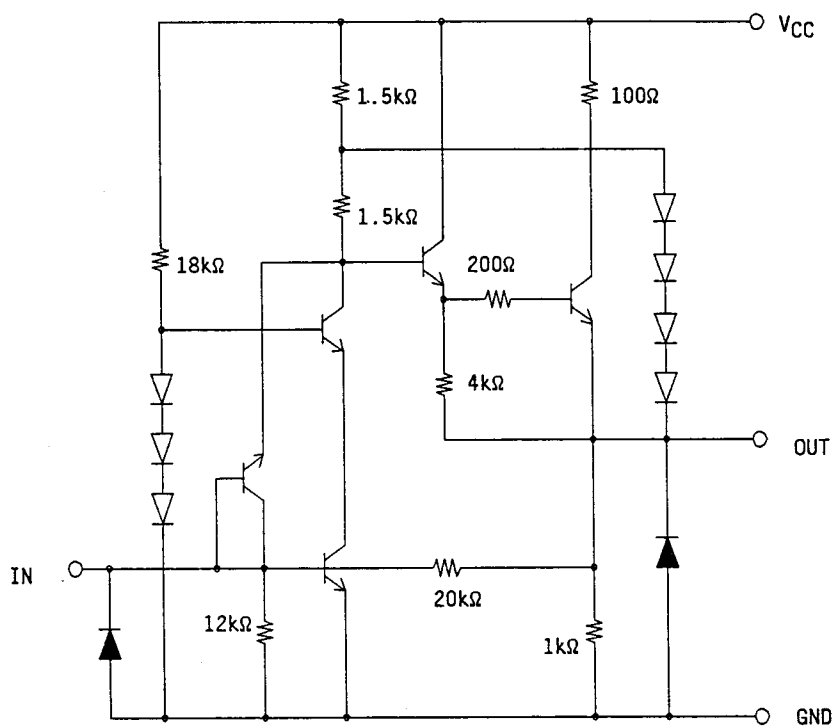
ABSOLUTE MAXIMUM RATINGS (See NOTE)

Rating	Symbol	Value	Unit
Power Supply Voltage	V_{CC}	16	V
Input Voltage	V_I	-0.3 to $(V_{CC}+0.3)$	V
Power Dissipation	P_D	250	mW
Operating Temperature	T_A	-20 to +75	°C
Storage Temperature	T_{STG}	-55 to +125	°C

NOTE: Permanent device damage may occur if ABSOLUTE MAXIMUM RATINGS are exceeded. Functional operation should be restricted to the conditions as detailed in the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

This device contains circuitry to protect the inputs against damage due to high static voltages or electric fields. However, it is advised that normal precautions be taken to avoid application of any voltage higher than maximum rated voltages to this high impedance circuit.

Fig.1- MB43468 EQUIVALENT CIRCUIT (1-CHANNEL)



Note:  Protection Diode

RECOMMENDED OPERATING CONDITIONS

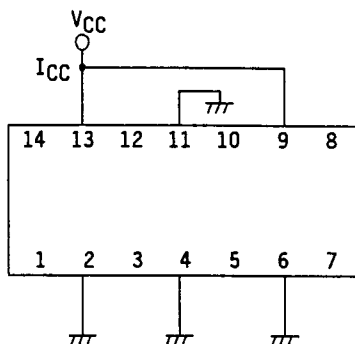
Parameter	Symbol	Condition	Value			Unit
			Min	Typ	Max	
Power Supply Voltage	V_{CC}		7	8	9	V
Operating Temperature	T_A		-20	25	75	°C

ELECTRICAL CHARACTERISTICS ($V_{CC}=+8V$, $T_A=25^{\circ}C$)

Parameter	Symbol	Condition	Value			Unit
			Min	Typ	Max	
Power Supply Current	I_{OC}		10	14	20	mA
Input Voltage	V_I		0.62	0.72	0.82	V
Output Voltage	V_O		1.7	2.1	2.5	V
Transresistance Gain	$1/g_m$	$I_I=-10\mu A$	-24	-20	-16	mV/ μA
Gain Variation from channel-to-channel	$\Delta 1/g_m$		94	100		%
Output Noise	V_N	$C_{IN}=5pF$, $f_{reg}=1MHz$		20		nV/ $\sqrt{Hz}$

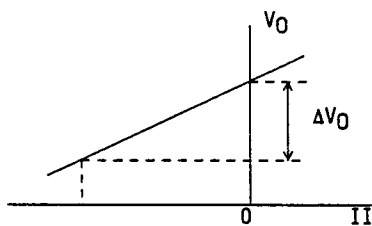
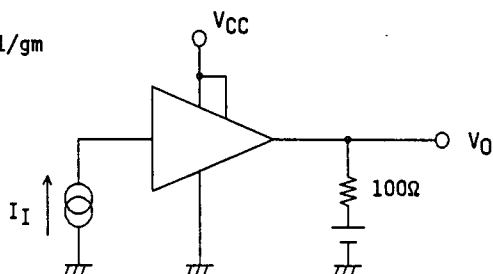
Fig.2 - TEST CIRCUITS

I_{CC} , V_I , V_O



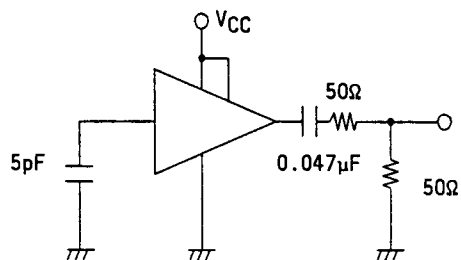
Input Pins: 1, 3, 5, 7
Output Pins: 14, 12, 10, 8

$1/g_m$, $\Delta I/g_m$



$$1/g_m = \Delta V_O / I_I$$

V_N



ELECTRICAL CHARACTERISTICS CURVES

Fig.3 - Gain vs. Frequency

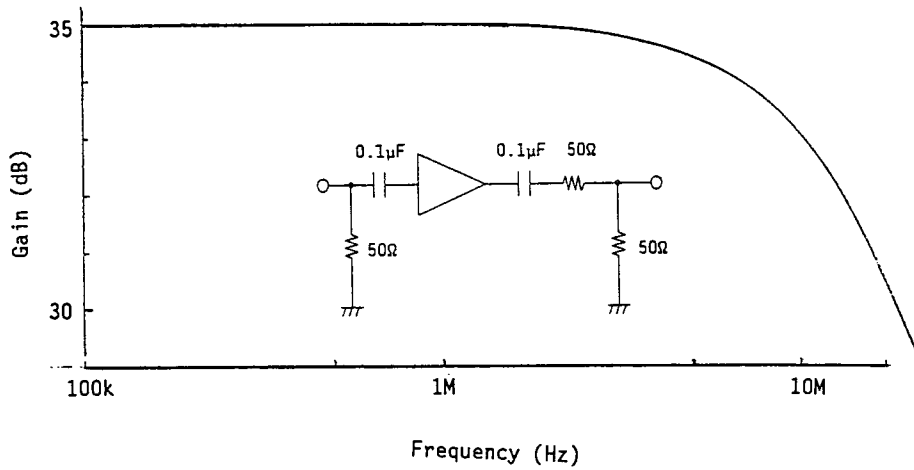
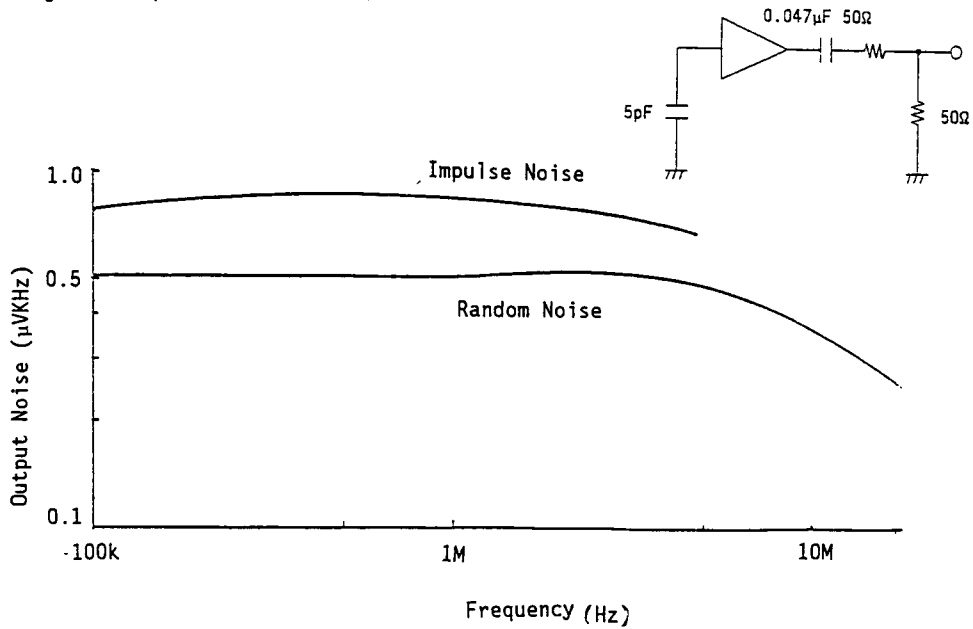


Fig.4 - Output Noise vs. Frequency



ELECTRICAL CHARACTERISTICS CURVES (Continued)

Fig.5 - Input Voltage vs. Time

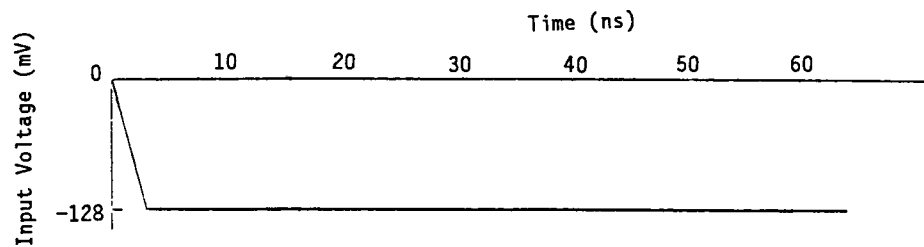
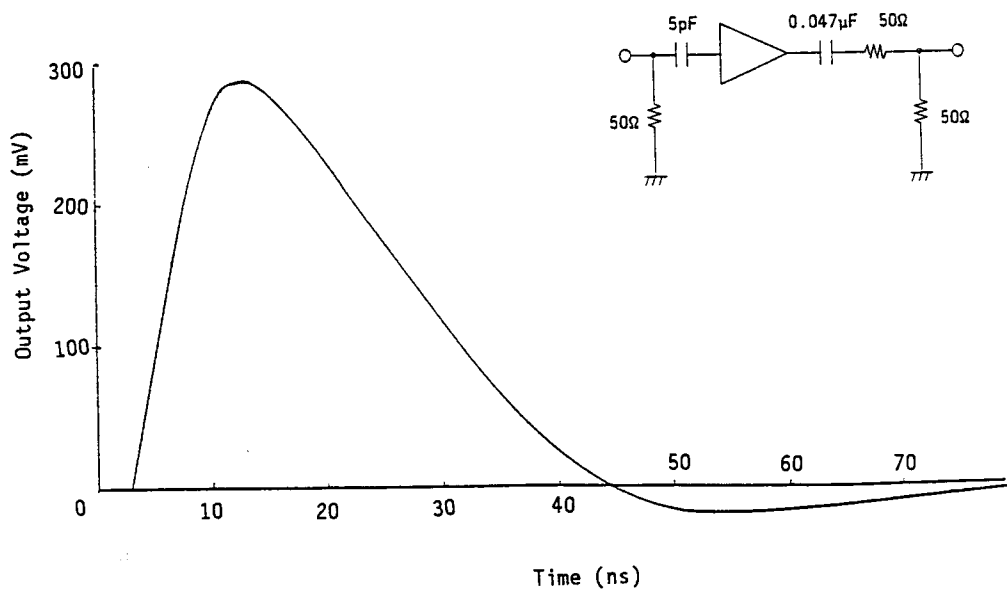
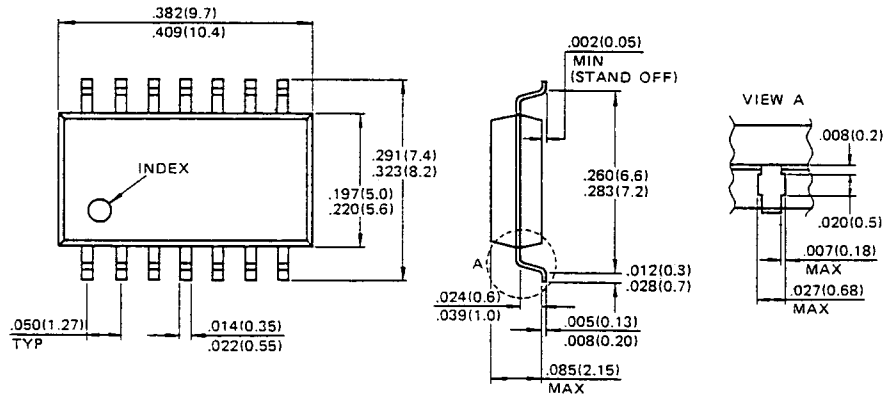


Fig.6 - Output Voltage vs. Time



PACKAGE DIMENSIONS

14-LEAD PLASTIC FLAT PACKAGE (CASE No.: FPT-14P-M01)



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