

# M51567P

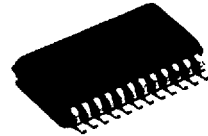
## PREAMPLIFIER FOR OPTICAL PICKUP

### DESCRIPTION

The M51567P is an optical pickup preamplifier for CD players. It has a built-in I-V amplifiers that convert current signals gained by photodetectors into voltage signals and HF (high frequency), FE (focus error), and TE (tracking error) amplifiers, as well as HFOK, MR, and EFM waveform shaping circuits that output in logic level.

### FEATURES

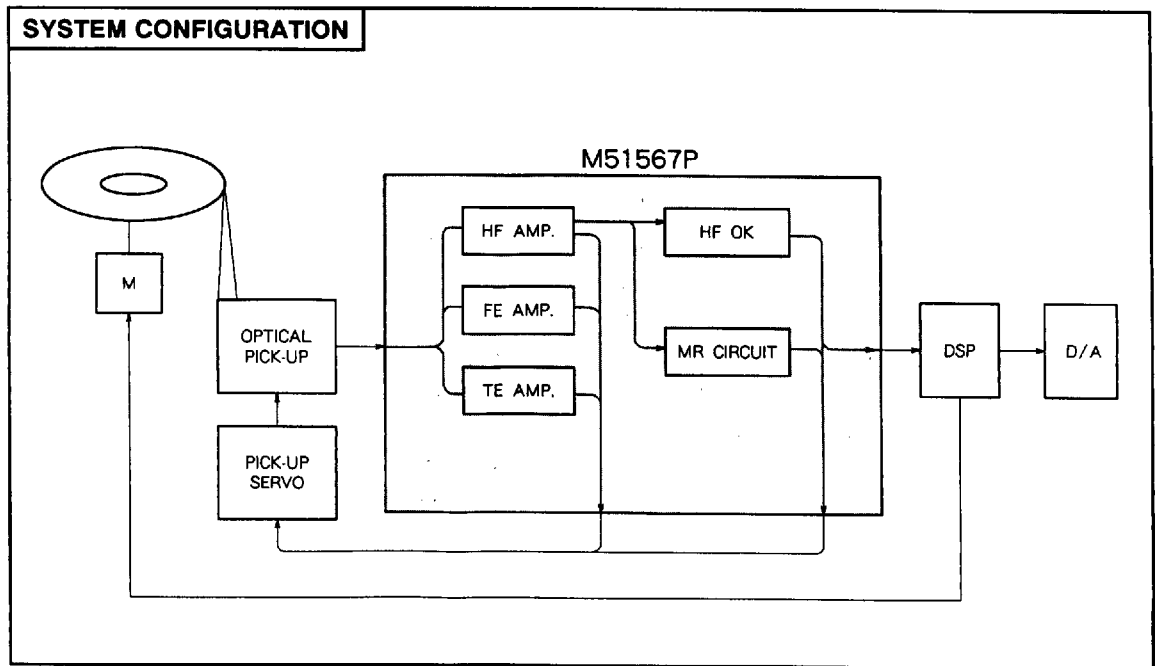
- For 3 laser system
- Combination with M51564P (pickup servo control) offers capability of forming optical pickup servo system operating on 5V single power supply
- Built-in LPF for TE and FE amplifiers to remove unwanted high-frequency components
- E-F balance control pin (pin ⑨)
- Built-in hold capacitor for mirror detection
- External components : 2 chemical capacitors, 2 ceramic capacitors, 1 volume control, and 2 resistors (excluding HF com. section)
- Built-in microminiature 24-pin flat package (0.8mm lead pitch)



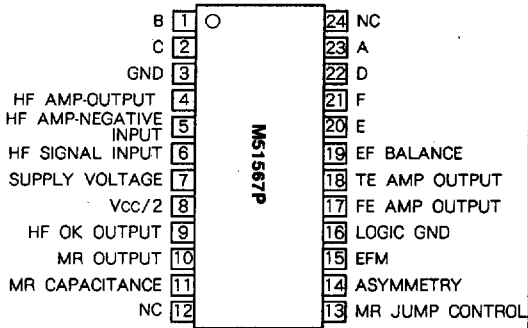
Outline 24P2Q-A  
0.8mm pitch 300mil SSOP  
(5.3mm × 10.1mm × 1.8mm)

### RECOMMENDED OPERATING CONDITIONS

- Supply voltage range .....  $V_{CC} = 4.75$  to  $5.25V$
- Rated supply voltage .....  $V_{CC} = 5V$
- Rated power dissipation .....  $80mW$



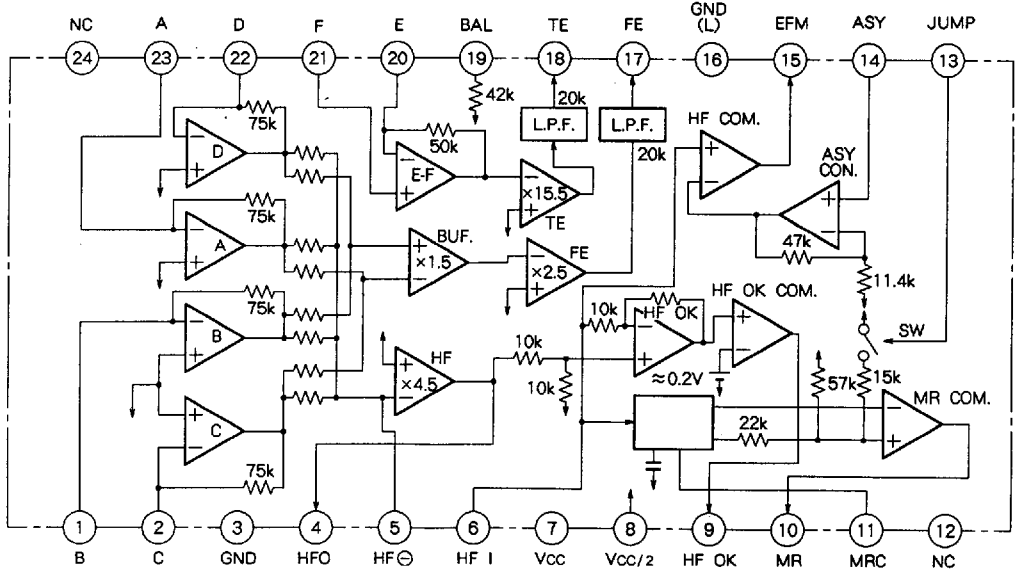
**PIN CONFIGURATION (TOP VIEW)**



Outline 24P2Q-A

NC: NO CONNECTION

**IC INTERNAL BLOCK DIAGRAM**



Units Resistance : Ω  
Capacitance : F

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**ABSOLUTE MAXIMUM RATINGS** (Ta = 25°C, unless otherwise noted)

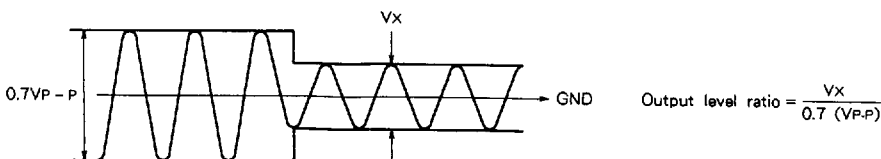
Symbol	Parameter	Ratings	Unit
Vcc	Supply voltage	10	V
Icc	Circuit current	40	mA
Vi	Input voltage	0 to Vcc	V
Vo	Output voltage	0 to Vcc	V
Pd	Power dissipation	540	mW
Topr	Operating temperature	- 20 to + 75	°C
Tstg	Storage temperature	- 40 to + 125	°C

**ELECTRICAL CHARACTERISTICS** (Ta = 25°C, Vcc = 5V)

Symbol	Block	Parameter	Test conditions	Limits			Unit
				Min	Typ	Max	
GVHF	HF	HF output voltage	Input f=1kHz, A, B, C, D input li=2μ AP-P	-	0.7	-	VP-P
fHF		HF frequency	Vi = 50mVrms input, - 3dB frequency	-	3	-	MHz
VOLA		HF Low output voltage		-	0.5	1.2	V
VOHA		HF High output voltage		3.2	3.8	-	V
VOHF		Output offset voltage		- 40	0	40	mV
GVFE	FE	FE output voltage	f=1kHz, A, C input li=2μ AP-P	-	0.55	-	VP-P
fFE		FE frequency		-	20	-	kHz
VLAC		FE Low output voltage	RL = 10k Ω	-	0.5	1.2	V
VHAC		FE High output voltage	RL = 10k Ω	3.6	4	-	V
VOFE		Output offset voltage		- 50	0	50	mV
GVTE1	TE	TE output voltage	f=1kHz, E input, li=2μ AP-P	-	1.55	-	VP-P
fTE1		TE frequency		-	20	-	kHz
VLE		TE Low output voltage	RL = 10k Ω	-	0.5	1.2	V
VHE		TE High output voltage	RL = 10k Ω	3.6	4	-	V
VOTE		Output offset voltage		- 110	0	110	mV
fOK	HFOK	HFOK frequency	pin⑥ input : 200mVrms Voffset = - 0.2V	45	-	-	kHz
VHHFOK		High output voltage		3.5	4	-	V
VLHFOK		Low output voltage		-	0	0.4	V
VTHHFOK		Threshold voltage	note 1	-	0.2	-	V
VHMR	MR	High output voltage		3.5	4	-	V
VLMR		Low output voltage		-	0	0.4	V
VTHMR	MR	Output level ratio	note 2	-	0.4	-	V
VTHMJ	MUMP	Output level ratio	V③ = 2.5V Same to VTHMR	-	0.7	-	V
VHEFM	EFM	High output voltage		3.5	4	-	V
VLEFM		Low output voltage		-	0.2	0.4	V

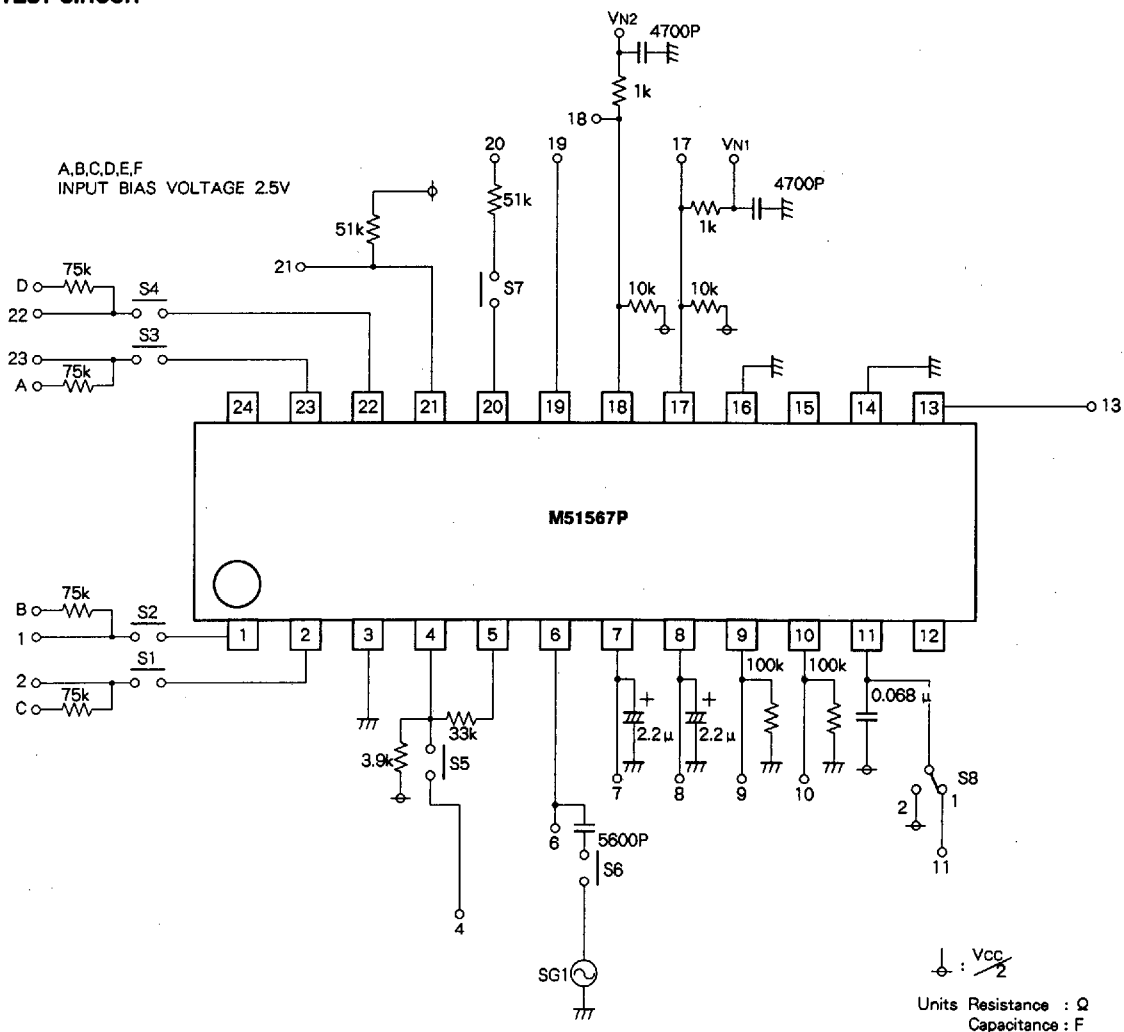
Note 1. DC voltage is input to A. Threshold voltage is the pin④ voltage when pin⑥ voltage changes from low to high.

2. Following signal is input to pin⑥. Measure Vx (VPP) when pin⑥ voltage becomes high.



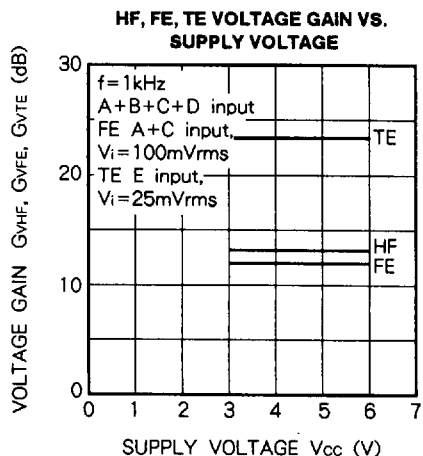
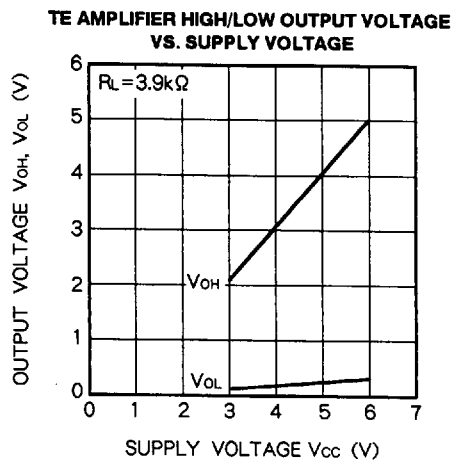
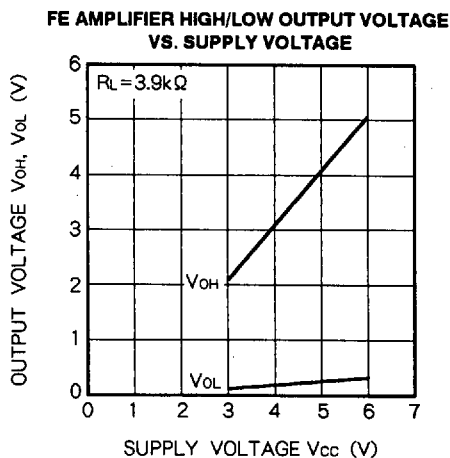
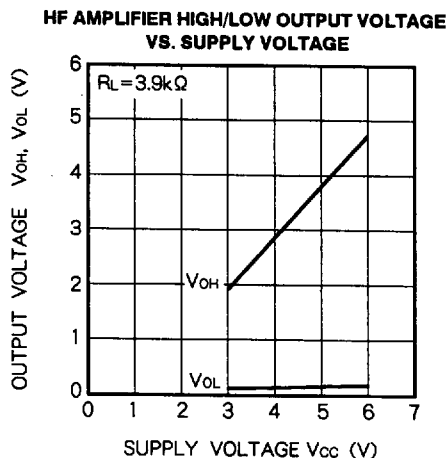
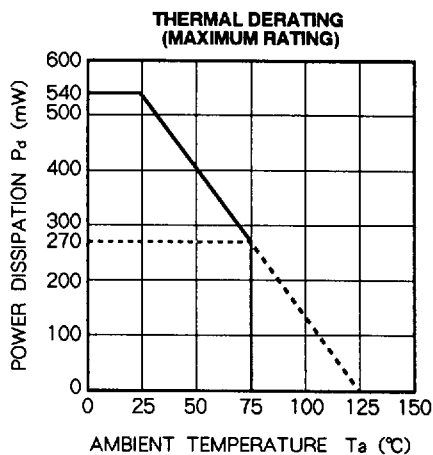
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TEST CIRCUIT



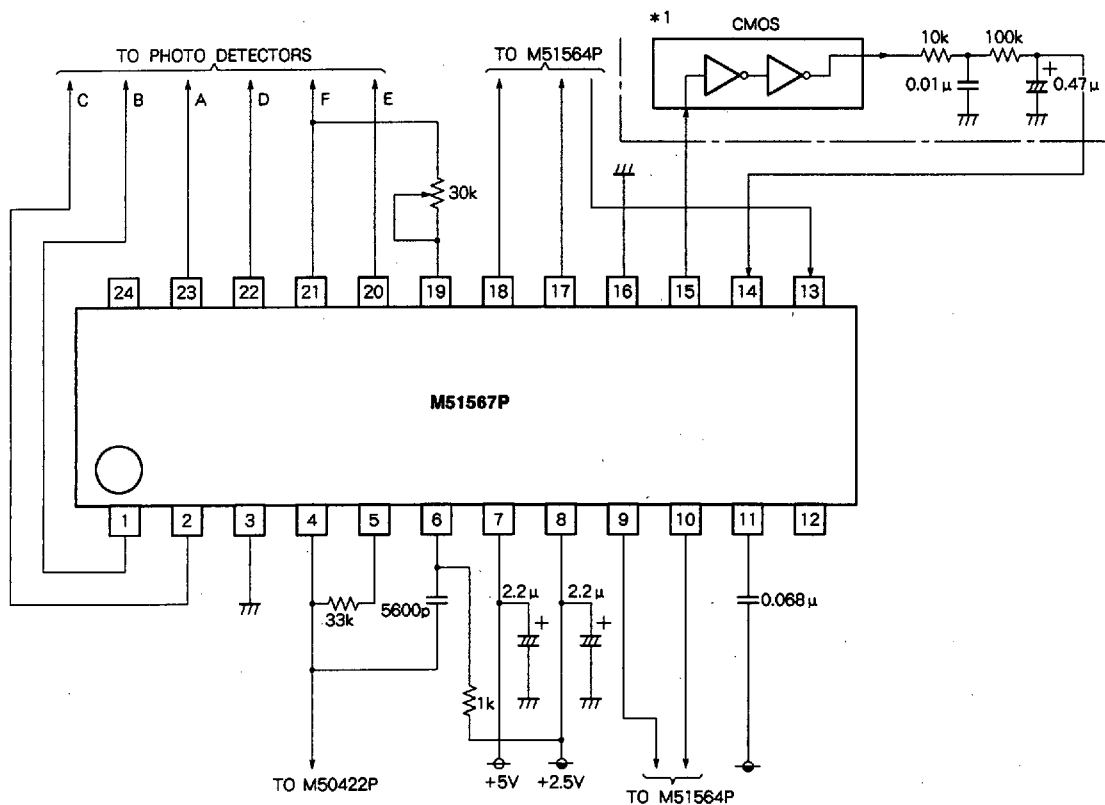
PREAMPLIFIER FOR OPTICAL PICKUP

TYPICAL CHARACTERISTICS



PREAMPLIFIER FOR OPTICAL PICKUP

APPLICAION EXAMPLE



\*1 Not used in combination with M50422P (C-MOS digital signal processor). Pin 14 is grounded.

Units Resistance : Ω  
Capacitance : F