

M51599FP

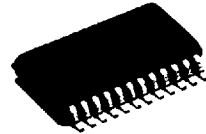
PREAMPLIFIER FOR OPTICAL PICKUP

DESCRIPTION

The M51599FP 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 and MR circuits that output in logic level.

FEATURES

- For 3 laser system
- High speed pickup access
Frequency of mirror circuit : 100kHz typ
- Built-in finger-print circuit
Variable level of mirror detector
- Built-in LPF for TE and FE amplifiers (fc = 70kHz)
- E-F balance control pin (pin ③)
- Built-in focus error balance control pin (pin ⑩)
- External components : 2 chemical capacitors, 4 ceramic capacitors, 2 volume controls, and 1 resistor
- Built-in microminiature 24-pin flat package (0.8mm lead pitch)

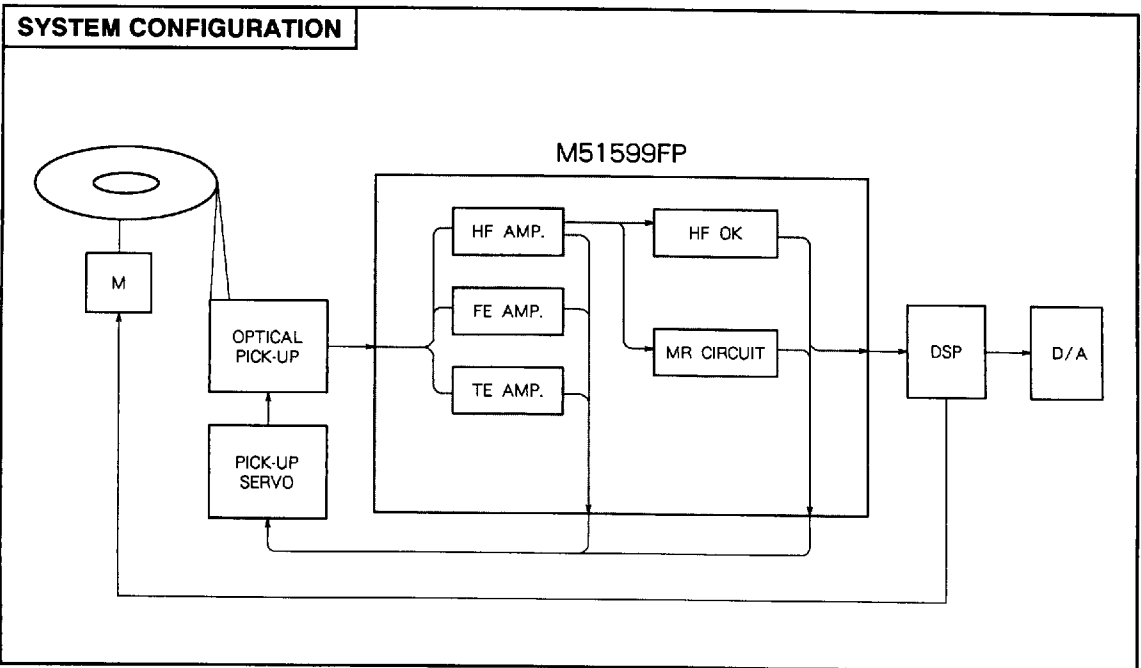


Outline 24P2Q-A

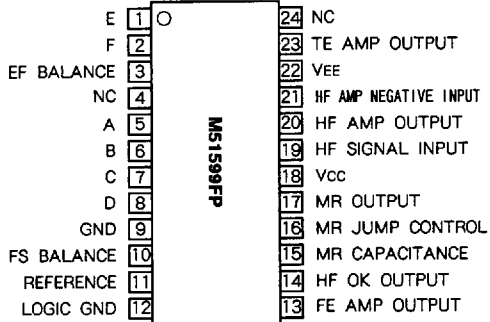
0.8mm pitch 300mil SSOP
(5.3mm × 10.1mm × 1.8mm)

RECOMMENDED OPERATING CONDITIONS

Supply voltage range..... V_{CC} , $V_{EE} = \pm 4.75 \sim \pm 5.25V$
 Rated supply voltage..... V_{CC} , $V_{EE} = \pm 5V$
 Rated power dissipation..... 85mW



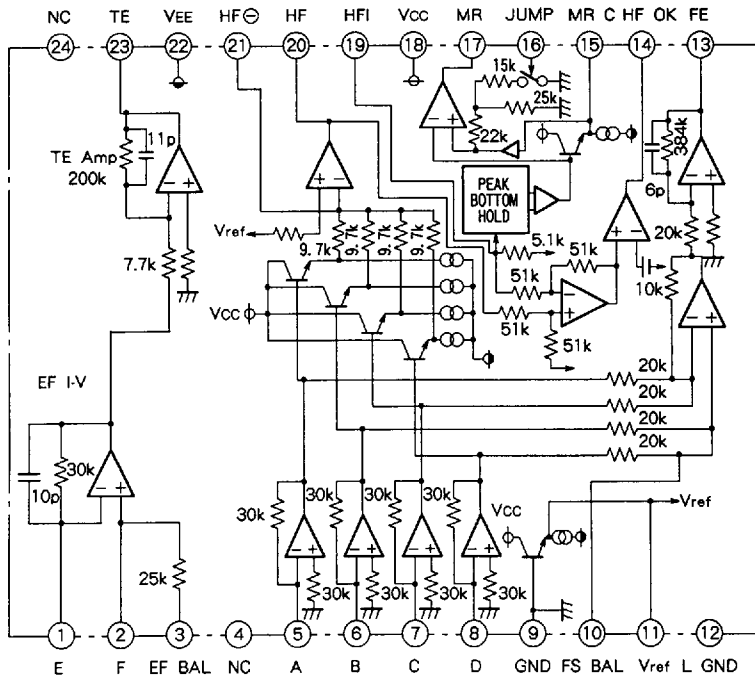
PIN CONFIGURATION



Outline 24P20-A

NC : NO CONNECTION

IC INTERNAL BLOCK DIAGRAM



Units Resistance : Ω
Capacitance : F

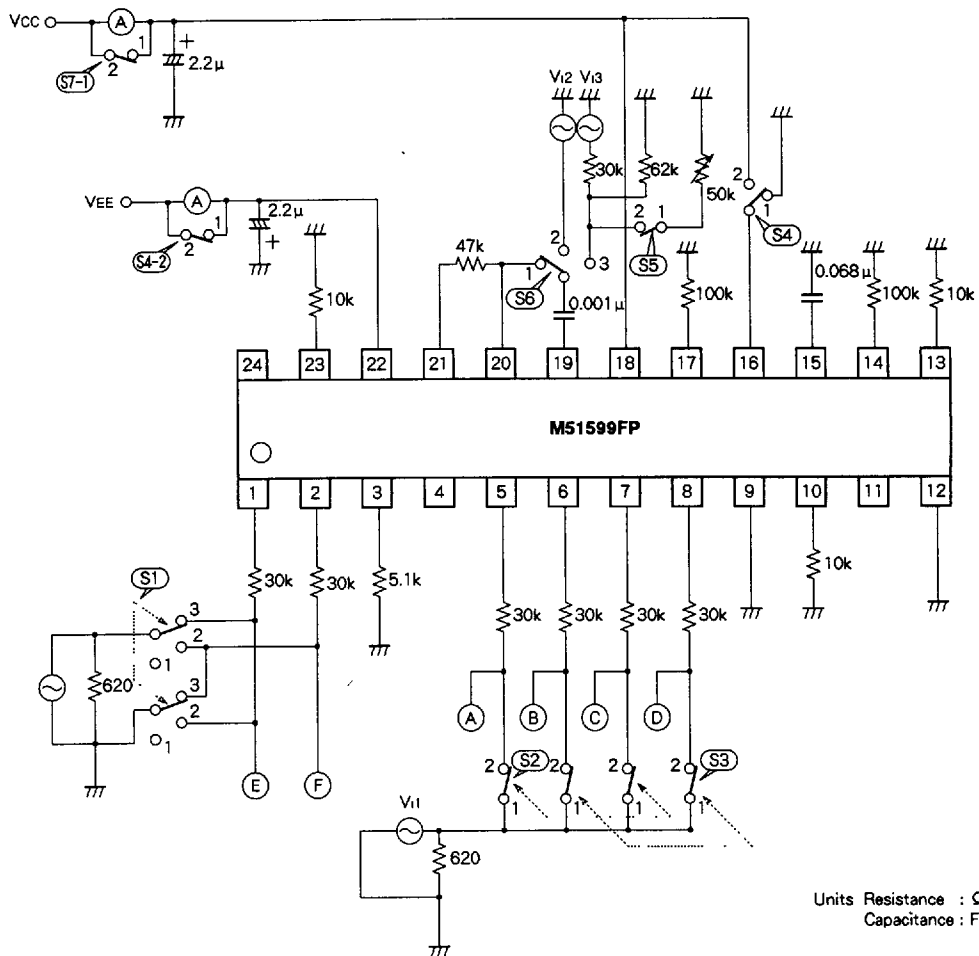
ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C, unless otherwise noted)

Symbol	Parameter	Ratings	Unit
Vcc	Supply voltage	13	V
Icc	Circuit current	± 40	mA
Vi	Input voltage	VEE - 0.3~Vcc + 0.3	V
Vo	Output voltage	VEE - 0.3~Vcc + 0.3	V
Pd	Power dissipation	540	mW
ToDr	Operating temperature	-20~+75	°C
Tstg	Storage temperature	-40~+125	°C

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

Symbol	Block	Parameter	Test conditions	Limits			Unit
				Min	Typ	Max	
ICC		Circuit current	No signal	-	17	34	mA
IEE				-34	-17	-	
GVHF	HF	HF output voltage	A~D input f=500kHz, Vi = 78mVp-p	1.35	1.5	1.65	Vp-p
fHF		HF frequency	A~D input f=2MHz, Vi = 65mVp-p	-8	-5	-	dB
VOHA		HF High output voltage		3.5	4.2	-	V
VOHF		HF output noise voltage	Input open	-140	50	+190	mV
GVFE	FE	FE output voltage	A, C input f=500kHz, Vi = 78mVp-p	2.1	3.0	3.9	Vp-p
VHAC		HF High output voltage	RL = 10kΩ	3.2	4.0	-	V
VLAC		HF Low output voltage	RL = 10kΩ	-	-4.5	-3.2	V
VOFE		Output offset voltage	Input open	-195	0	+195	mV
GVTE	TE	TE output voltage	E input f=1kHz Vi = 38.4mVp-p	0.7	1.0	1.3	Vp-p
VHE		TE High output voltage	RL = 10kΩ	3.2	4.0	-	V
VLE		TE Low output voltage	RL = 10kΩ	-	-4.5	-3.2	V
VOTE		Output offset voltage	Input open	-160	0	+160	mV
VHOK	HFOK	HFOK High output voltage		3.5	4.1	-	V
VLOK		HFOK Low output voltage	No signal	-	0	0.4	V
VTHK		Threshold voltage		0.26	0.37	0.48	V
VTHOK	MR	MR High output voltage	No signal	3.5	4.1	-	V
VLMR		MR Low output voltage		-	0	0.4	V
VTHN		Envelope ratio (normal)	f = 500kHz (carrier)	0.26	0.36	0.46	-
VTHJ		Envelope ratio (jump)	f = 500kHz (carrier)	0.5	0.6	0.7	-
fMRF		MR frequency	f = 500kHz (carrier), AM mod=55%	47	60	-	kHz

TEST CIRCUIT



TYPICAL CHARACTERISTICS

