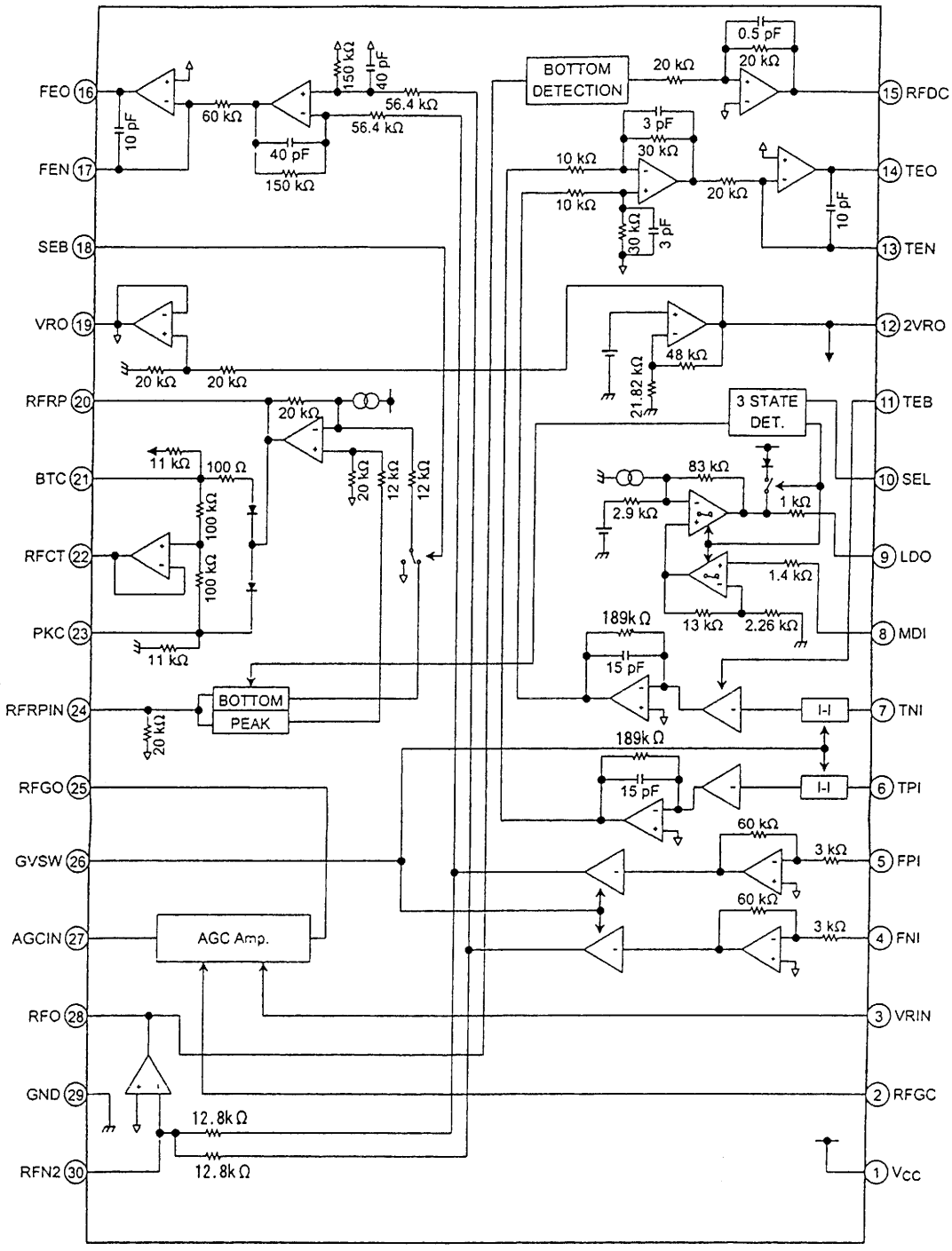
IC INFORMATION

Function	RF Amplifire for Digital Servo CD System	**TA2151FN**	1/3	E
Type	C MOS	Model	XR-VS400	

● **Block Diagram**



SEL	LDC			RFRP Detect Frequency
	SW1	SW2	SW3	
GND	ON	OFF	OFF	Low
HiZ	OFF	ON	ON	
Vcc				High

GVSW	Mode
GND	CD-RW
HiZ	Normal
Vcc	

SEB	Bottom Detect	Peak Detect
GND	ON	ON
HiZ		
Vcc	OFF	

●**Pin Function**

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>I/O</th><th>Functional Description</th><th>Remarks</th></tr>
<tr><td>1</td><td>V_{CC}</td><td>—</td><td>Power supply input terminal.</td><td>—</td></tr>
<tr><td>2</td><td>RFGC</td><td>I</td><td>RF amplitude adjustment control signal input terminal.
Controlled by 3-PWM signals.
(PWM carrier = 88.2 kHz)
RFGC input voltage: VRO ± 1.5 V
AGC amplifier voltage again: ×0.7~1.5 (typ.)</td><td>—</td></tr>
<tr><td>3</td><td>VRIN</td><td>I</td><td>AGC amp. Reference voltage input terminal.</td><td>Connected to VRO</td></tr>
<tr><td>4</td><td>FNI</td><td>I</td><td>Main beam I-V amp input terminal.</td><td>Connected to pin diode output B + D (through resistor).</td></tr>
<tr><td>5</td><td>FPI</td><td>I</td><td>Main beam I-V amp input terminal.</td><td>Connected to pin diode output A + C (through resistor).</td></tr>
<tr><td>6</td><td>TPI</td><td>I</td><td>Sub beam I-V amp input terminal.</td><td>Connected to pin diode output F.</td></tr>
<tr><td>7</td><td>TNI</td><td>I</td><td>Sub beam I-V amp input terminal.</td><td>Connected to pin diode output E.</td></tr>
<tr><td>8</td><td>MDI</td><td>I</td><td>Monitor photo diode amp input terminal.</td><td>Connected to monitor photo diode.</td></tr>
<tr><td>9</td><td>LDO</td><td>O</td><td>Laser diode amp input terminal.</td><td>Connected to laser diode control circuit.</td></tr>
<tr><td>10</td><td>SEL</td><td>I</td><td>Laser diode control signal input terminal and APC circuit ON/OFF control signal terminal.
<table>
<tr><th>SEL Level</th><th>APC Circuit</th><th>LDO</th><th>Detect Frequency</th></tr>
<tr><td>GND</td><td>OFF</td><td>Connected to V_{CC} through resister (1 kΩ)</td><td rowspan="2">Low</td></tr>
<tr><td>HiZ</td><td rowspan="2">ON</td><td rowspan="2">Control signal output</td></tr>
<tr><td>V_{CC}</td><td>High</td></tr>
</table></td><td>3 signals input.
(V_{CC}, HiZ, GND)</td></tr>
<tr><td>11</td><td>TEB</td><td>I</td><td>Tracking error balance adjustment signal input terminal.
Controlled by 3-PWM signal.
(PWM carrier = 88.2 kHz)</td><td>3 signals input.
(2VRO, VRO, GND)</td></tr>
<tr><td>12</td><td>2VRO</td><td>O</td><td>Reference voltage (2VRO) output terminal.
2VRO = 4.2 V when V_{CC} = 5 V</td><td>—</td></tr>
<tr><td>13</td><td>TEN</td><td>I</td><td>TE amp negative input terminal.</td><td>Connected to TEO through feedback resistor.</td></tr>
<tr><td>14</td><td>TEO</td><td>O</td><td>TE error signal output terminal.</td><td>—</td></tr>
<tr><td>15</td><td>RFDC</td><td>O</td><td>RF signal peak detect output terminal.</td><td>—</td></tr>
<tr><td>16</td><td>FEO</td><td>O</td><td>Focus error signal output terminal.</td><td>—</td></tr>
<tr><td>17</td><td>FEN</td><td>I</td><td>FE amp negative input terminal.</td><td>Connected to FEO through feedback resistor.</td></tr>
<tr><td>18</td><td>SEB</td><td>I</td><td>RFRP output circuit switching terminal.
<table>
<tr><th>SEB Level</th><th>Bottom Detection</th><th>Peak Detection</th></tr>
<tr><td>GND</td><td>ON</td><td rowspan="2">ON</td></tr>
<tr><td>V_{CC}</td><td>OFF</td></tr>
</table></td><td>Low (GND) is for normal use.</td></tr>
<tr><td>19</td><td>VRO</td><td>O</td><td>Reference voltage (VRO) output terminal.
VRO = 2.1 V when V_{CC} = 5 V</td><td>—</td></tr>
</table>

Pin No.	Symbol	I/O	Functional Description	Remarks
20	RFRP	O	Track count signal output terminal.	—
21	BTC	I	Time constant adjustment terminal for bottom detection.	Adjusted by capacitance.
22	RFCT	O	RFRP signal center level output terminal.	—
23	PKC	I	Time constant adjustment terminal for peak detection.	Adjusted by capacitance.
24	RFRPIN	I	Input terminal for track count signal output amp.	—
25	RFGO	O	Output terminal for RF signal amplitude adjustment amp.	—
26	GVSW	I	Amp (FE, TE) gain switching terminal. GVSW: GND → CD-RW; HiZ, V_{CC} → Normal	Low (GND) is for 5 times gain.
27	AGCIN	I	Input terminal for RF signal amplitude adjustment amp.	Connected to RFO through capacitance.
28	RFO	O	Output terminal RF signal amp.	—
29	GND	—	Ground terminal.	—
30	RFN2	I	Input terminal for RF signal amp.	—

Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Power supply voltage	V_{CC}	8	V
Power dissipation	P_D	500	mW
Operating temperature	T_{opr}	–40~85	°C
Storage temperature	T_{stg}	–55~150	°C