PLESSEY
Semiconductors

SL360, SL1360, SL362 & SL1362

HIGH PERFORMANCE NPN DUAL TRANSISTOR ARRAYS

The SL360, SL1360, SL362 and SL1362 are high performance NPN dual transistor arrays fabricated as monolithic silicon devices. They feature accurate parameter matching and close thermal tracking. They have high transition frequencies (typ. 2.2 GHz) and low device capacitance. In addition the SL362 and SL1362 offer good noise performance (1.6dB noise figure at 60MHz).

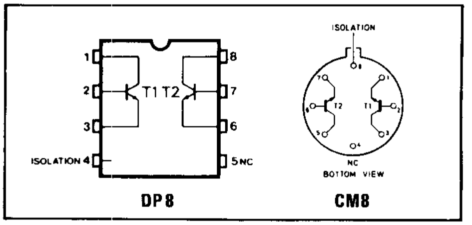

Fig. 1 Pin connections

APPLICATIONS

- Instrumentation
- PCM Repeaters
- Analogue Signal Processing
- High Speed Switches – Digital and Analogue

FEATURES

- Accurate Parameter Matching.
- High f_T (1.5GHz min., SL360)
- Low Noise (1.6dB at 60MHz SL362, SL1362)

ELECTRICAL CHARACTERISTICS

Test conditions (unless otherwise stated):
T_{amb} = 22°C ±2°C

Characteristic	Symbol	Type	Value Min.	Value Typ.	Value Max.	Units	Conditions
Collector base breakdown	BV_{CBO}	All	10	32		V	$I_C = 10\mu A$
Collector isolation breakdown	BV_{CIO}	All	16	60		V	$I_C = 10\mu A$
Emitter base breakdown	BV_{EBO}	SL360/1360	5			V	$I_E = 10\mu A$
		SL362/1362	5			V	$I_E 100\mu A$
Collector emitter breakdown	LV_{CEO}	All	7	14		V	$I_C = 5mA$
DC current gain	H_{fe}	SL360/1360	30	65			$V_{CE} = 2V$, $I_E = 5mA$
		SL362/1362	30	70			$V_{CE} = 2V$, $I_E = 1mA$
Transition frequency	f_T	SL360	1.5	2.2		GHz	
		SL1360		2.2		GHz	$V_{CE} = 2.5$, $I_E = 5mA$, f=200MHz
		SL362/1362	1.4	2.2		GHz	$V_{CE} = 5.0V$, $I_E = 5mA$, f=200MHz
Input offset voltage	$V_{BE1} - V_{BE2}$	SL360/1362		3	10	mV	$V_{CE} = 2V$, $I_E = 1mA$
		SL362/1362		5		mV	$V_{CE} = 2V$, $I_E = 1mA$
Input offset current	$\frac{H_{FE1}}{H_{FE2}}$	All	0.9	1.0	1.1		$V_{CE} = 2V$, $I_E = 5mA$
Saturation voltage	$V_{CE}SAT$	SL360/1360		0.25	0.6	V	$I_E = 10mA$, $I_B = 1mA$
Noise figure	NF	SL362/1362		1.6	2.0	dB	$I_E = 1mA$, $R_S = 200\Omega$, f=60MHz
Collector base capacitance	C_{OB}	SL360		0.5		pF	$V_{CB} = 0V$
		SL362		1.3		pF	$V_{CB} = 0V$
Collector isolation capacitance	C_{CI}	SL360		2.3		pF	$V_{CI} = 0V$
		SL362		3.8		pF	$V_{CI} = 0V$
Emitter base capacitance	C_{TE}	SL360		0.5		pF	$V_{BE} = 0V$
		SL362		2.1		pF	$V_{BE} = 0V$
Forward base emitter voltage	$V_{BE}(ON)$	SL360/1360		0.72		V	$I_E = 1mA$, $V_{CE} = 2V$
Collector base leakage	I_{CBO}	SL360			1	nA	$V_{CB} = 10V$
		SL1360			100	nA	$V_{CB} = 10V$
Collector isolation leakage	I_{CIO}	SL360			1	nA	$V_{CI} = 10V$
		SL1360			100	nA	$V_{CI} = 10V$
Emitter base leakage	I_{EBO}	SL360			1	nA	$V_{EB} = 2V$
		SL1360			100	nA	$V_{EB} = 2V$

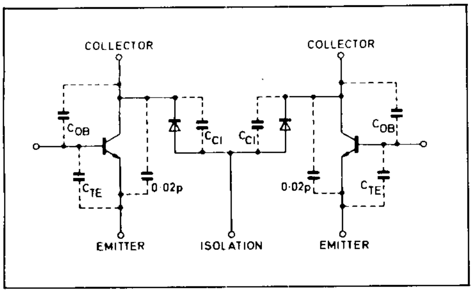

Fig. 2 Equivalent circuit for SL360, SL1360, SL362, SL1362

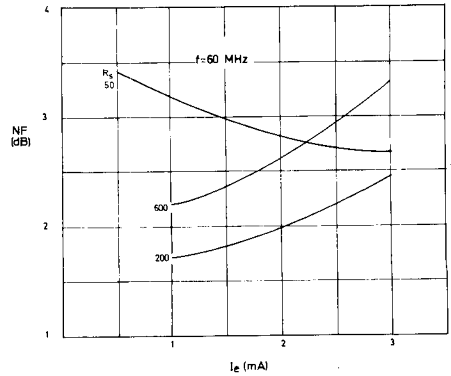

Fig. 3 Typical noise figure emitter current for SL362, SL1362

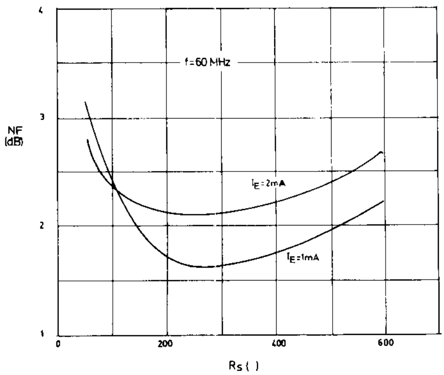

Fig. 4 Typical noise figure v source impedance for SL362, SL1362

ABSOLUTE MAXIMUM RATINGS

All electrical ratings apply to individual transistors. Thermal ratings apply to the total package.

The absolute maximum ratings are limiting values above which life may be shortened or specified parameters may be degraded.

The isolation pin (substrate) must be connected to the most negative point of the circuit to maintain electrical isolation between transistors.

Electrical ratings

V_{CB} = 10V V_{EB} = 5V V_{CE} = 8V
V_{CI} = 16V I_C = 50mA

Thermal ratings

	Package type	
	CM8	**DP8**
Storage temperature	−55°C to +150°C	−55°C to +125°C
Operating junction temperature	150°C	125°C
Thermal resistance		
Chip-to-case	60°C/W	–
Chip-to-ambient	220°C/W	200°C/W