T-43-25

GEC PLESSEY
SEMICONDUCTORS

SL360G & SL362C

HIGH PERFORMANCE NPN DUAL TRANSISTOR ARRAYS

The SL360G and SL362C 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. 2.2GHz) and low device capacitance. In addition the SL362C offers good noise performance (1.6dB noise figure at 60MHz).

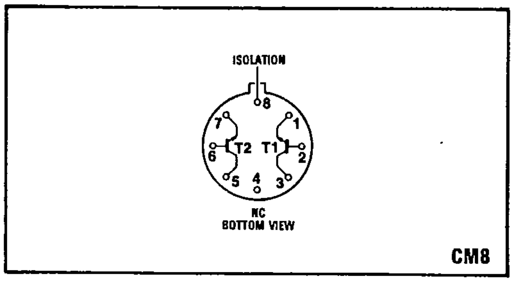

Fig. 1 Pin connections

APPLICATIONS

- Instrumentation
- PCM Repeaters
- Analog Signal Processing
- High Speed Switches — Digital and Analog

ORDERING INFORMATION

SL360 G CM
SL362 C CM

FEATURES

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

ELECTRICAL CHARACTERISTICS

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

Characteristic	Symbol	Type	Value			Units	Conditions
			Min.	Typ.	Max.		
Collector base breakdown	BV_{CBO}	Both	10	32		V	$I_C = 10\mu A$
Collector isolation breakdown	BV_{CIO}	Both	16	60		V	$I_C = 10\mu A$
Emitter base leakage	I_{EBO}	SL360/362C			1	µA	$V_{EB} = 4V$
Emitter base leakage	I_{EBO}	SL360			1	nA	$V_{EB} = 2V$
Collector emitter breakdown	LV_{CEO}	All	7	14		V	$I_C = 5mA$
DC current gain	H_{FE}	SL360	30	65			$V_{CE} = 2V, I_E = 5mA$
		SL362	30	70			$V_{CE} = 2V, I_E = 1mA$
Transition frequency	f_T	SL360G	1.6	2.2		GHz	$V_{CE} = 2.5V, I_E = 25mA$, f =200MHz (See Notes)
		SL362	1.0	1.5		GHz	$V_{CE} = 5V, I_F = 5mA$, f =200MHz
Input offset voltage	$V_{BE1} - V_{BE2}$	SL360		3	10	mV	$V_{CE} = 2V, I_E = 1mA$
		SL362		5		mV	$V_{CE} = 2V, I_E = 1mA$
Input offset current	H_{FE1}/H_{FE2}	Both	0.9	1.0	1.1		$V_{CE} = 2V, I_E = 5mA$
Saturation voltage	$V_{CE}(SAT)$	SL360		0.25	0.6	V	$I_E = 10mA, I_B = 1mA$
Noise figure	NF	SL362		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		0.72		V	$I_E = 1mA, V_{CE} = 2V$
Collector base leakage	I_{CBO}	SL360			1	nA	$V_{CB} = 10V$
Collector isolation leakage	I_{CIO}	SL360			1	nA	$V_{CI} = 10V$

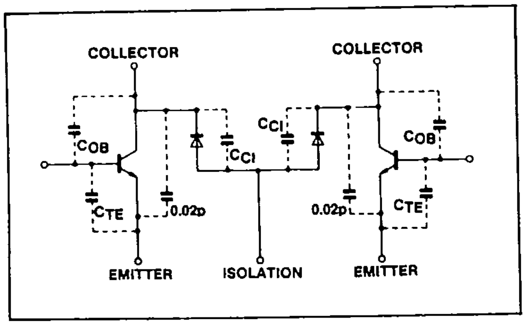

Fig.2 Equivalent circuit for SL360, SL362

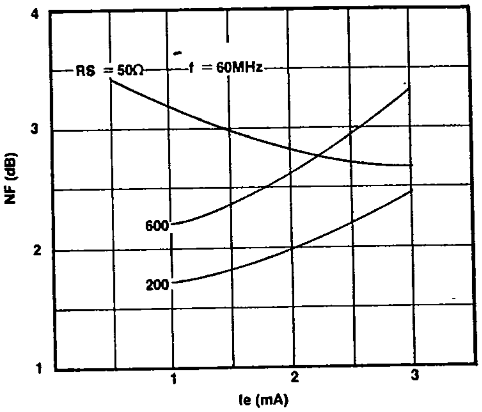

Fig. 3 Typical noise figure emitter current for SL362

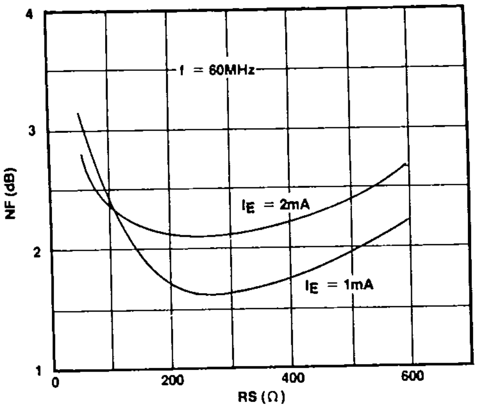

Fig. 4 Typical noise figure v source impedance for SL362

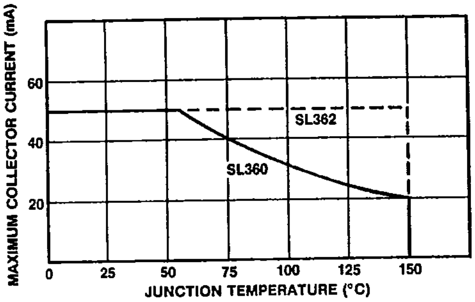

Fig.5 Max. continuous collector current vs junction temperature

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

$V_{CB} = 10V$ $V_{EB} = 4V$ $V_{CE} = 8V$
$V_{CI} = 16V$ $I_C = 20mA$ (SL360); 50mA (SL362)
(see Figure 5)

Thermal ratings

	CM8
Storage temperature	−55°C to +150°C
Operating junction temperature	150°C
Thermal resistance (see Note)	
Chip-to-case	265° C/W
Chip-to-ambient	425° C/W

These figures are worst case, assuming all power is dissipated in one transistor. If the power is equally shared between the two transistors, both thermal resistance figures can be reduced by 50° C/watt.