PLESSEY
Semiconductors

T-43-25

SL3227

3GHz NPN TRANSISTOR ARRAYS

The SL3227 is a monolithic array of the five high frequency low current NPN transistors in a 16 lead DIL package. The transistors exhibit typical f_T of 3GHz and wideband noise figures of 2dB. The SL3227 is pin compatible with the CA3127 and SL3127.

FEATURES

- f_T Typically 3GHz
- Wideband Noise Figure 2.0dB
- V_{BE} Matching better than 5mV

APPLICATIONS

- Wide Band Amplifiers
- PCM Regenerators
- High Speed Interface Circuits
- High Performance Instrumentation Amplifiers
- High Speed Modems

ABSOLUTE MAXIMUM RATINGS

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

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

The isolation pin (substrate) must be connected to the most negative voltage applied to the package to maintain electrical isolation.

$V_{CB} = 10V$
$V_{EB} = 2.5V$
$V_{CE} = 6V$
$V_{CI} = 15V$
$I_C = 20mA$
Maximum individual transistor dissipation 200mW
Storage temperature -55°C to +150°C
Max. junction temperature +150°C
Package thermal resistance (°C/watt)

Package Type	DC16	DP16	MP16
Chip to Case	40		
Chip to Ambient	120	180	200

NOTE: If all the power is being dissipated in one transistor these thermal resistance figures should be increased by 100°C/watt.

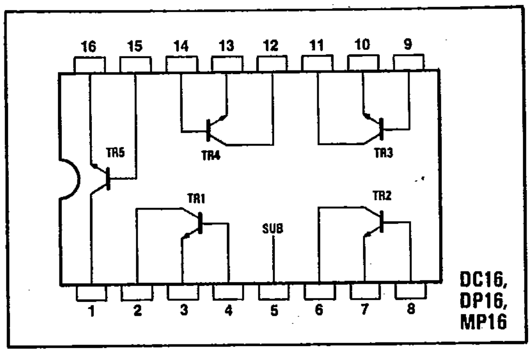

Fig.1 Pin connections - SL3227

ORDERING INFORMATION

SL3227 DC	Ceramic/Metal
SL3227 DP	Plastic
SL3227 MP	Miniature Plastic

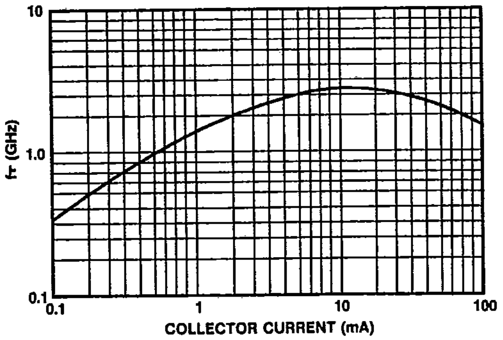

Fig.2 Transition frequency (f_T) v. collector current ($V_{CB} = 2V$, $f = 200MHz$)

ELECTRICAL CHARACTERISTICS

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

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Static Characteristics

Characteristic	Symbol	Value			Units	Conditions
		Min.	Typ.	Max.		
Collector base breakdown	BV_{CBO}	10	20		V	$I_C = 10\mu A$
Collector isolation breakdown	BV_{CIO}	16	40		V	$I_C = 10\mu A$
Base emitter breakdown	BV_{EBO}	2.5	5.0		V	$I_E = 10\mu A$
Collector emitter breakdown	LV_{CEO}	6	9		V	$I_C = 5mA$
Collector emitter saturation voltage	$V_{CE(SAT)}$		0.22	0.5	V	$I_C = 10mA$, $I_B = 1mA$
Base emitter voltage	V_{BE}	0.73	0.78	0.81	V	$V_{CE} = 2V$, $I_C = 1mA$
Base emitter voltage difference all transistors	ΔV_{BE}		0.45	5.0	mV	$V_{CE} = 2V$, $I_C = 1mA$
Input offset current	ΔI_B		0.2	3	μA	$V_{CE} = 2V$, $I_C = 1mA$
Temperature coefficient of V_{BE}	$\frac{\Delta V_{BE}}{T}$		-1.69		mV/°C	$V_{CE} = 2V$, $I_C = 1mA$
Static forward current ratio	H_{fe}	35	80			$V_{CE} = 2V$, $I_C = 5mA$
		35	95			$V_{CE} = 2V$, $I_C = 0.1mA$
		40	85			$V_{CE} = 2V$, $I_C = 1mA$
Emitter base leakage	I_{EBO}		15		nA	$V_{EB} = 2V$
Collector base leakage	I_{CBO}		5		pA	$V_{CB} = 10V$
Collector isolation leakage	I_{CIO}		5		pA	$V_{CI} = 16V$
Emitter base capacitance	C_{EB}		0.7		pF	$V_{EB} = 0V$
Collector base capacitance	C_{CB}		0.4		pF	$V_{CI} = 0V$
Collector isolation capacitance	C_{CI}		1.5	2.0	pF	$V_{CI} = 0V$

Dynamic Characteristics

Characteristic	Symbol	Value			Units	Conditions
		Min.	Typ.	Max.		
Transition frequency	f_T		3		GHz	$V_{CE} = 2V$, $I_C = 5mA$
Wideband noise figure	NF		2.0		dB	$f = 60MHz$ $V_{CC} = 6V$
Knee of NF noise curve			1		kHz	$I_C = 1mA$ $R_S = 1k\Omega$