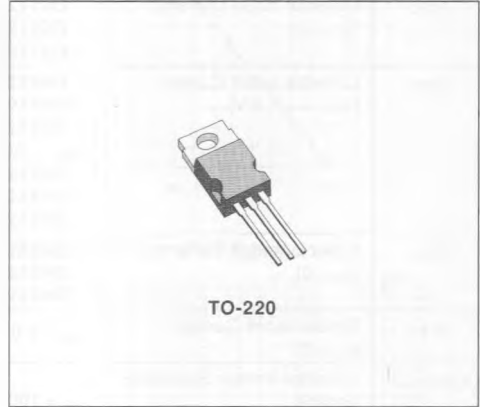


MEDIUM POWER LINEAR AND SWITCHING APPLICATIONS

DESCRIPTION

The 2N6121, 2N6122 and 2N6123 are silicon epitaxial-base NPN power transistors in Jedec TO-220 plastic package, intended for use in medium power linear and switching applications.

The complementary PNP types are the 2N6124, 2N6125 and 6126 respectively.



INTERNAL SCHEMATIC DIAGRAMS



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	NPN PNP*	2N6121	2N6122	2N6123	Unit
			2N6124	2N6125	2N6126	
V_{CBO}	Collector-base Voltage ($I_E = 0$)		45	60	80	V
V_{CES}	Collector-emitter Voltage ($V_{BE} = 0$)		45	60	80	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)		45	60	80	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)		5			V
I_C	Collector Current		4			A
I_{CM}	Collector Peak Current		7			A
I_B	Base Current		1			A
P_{Tot}	Total Power Dissipation at $T_{case} \leq 25^\circ\text{C}$		40			W
T_{stg}	Storage Temperature		- 65 to 150			$^\circ\text{C}$
T_j	Junction Temperature		150			$^\circ\text{C}$

For PNP type voltage and current values are negative.

THERMAL DATA

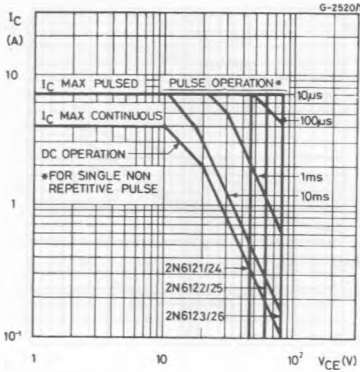
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	3.12	$^{\circ}C/W$
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	70	$^{\circ}C/W$

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

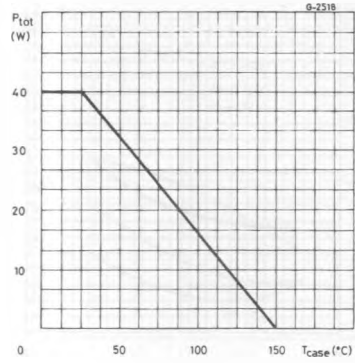
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cutoff Current ($I_E = 0$)	for 2N6121/24 $V_{CB} = 45\ V$ for 2N6122/25 $V_{CB} = 60\ V$ for 2N6123/26 $V_{CB} = 80\ V$			100 100 100	μA μA μA
I_{CEX}	Collector cutoff Current ($V_{BE} = -1.5\ V$)	for 2N6121/24 $V_{CE} = 45\ V$ for 2N6122/25 $V_{CE} = 60\ V$ for 2N6123/26 $V_{CE} = 80\ V$ $T_{case} = 125^{\circ}C$ for 2N6121/24 $V_{CE} = 45\ V$ for 2N6122/25 $V_{CE} = 60\ V$ for 2N6123/26 $V_{CE} = 80\ V$			100 100 100 2 2 2	μA μA μA μA μA μA
I_{CEO}	Collector cutoff Current ($I_B = 0$)	for 2N6121/24 $V_{CE} = 45\ V$ for 2N6122/25 $V_{CE} = 60\ V$ for 2N6123/26 $V_{CE} = 80\ V$			1 1 1	mA mA mA
I_{EBO}	Emitter cutoff Current ($I_C = 0$)	$V_{EB} = 5\ V$			1	mA
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage ($I_B = 0$)	$I_C = 100\ mA$ for 2N6121/24 for 2N6122/25 for 2N6123/26	45 60 80			V V V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 1.5\ A$ $I_C = 4\ A$	$I_B = 0.15\ A$ $I_B = 1\ A$		0.6 1.4	V V
V_{BE}^*	Base-emitter Voltage	$I_C = 1.5\ A$	$V_{CE} = 2\ V$		1.2	V
h_{FE}^*	DC Current Gain	$I_C = 1.5\ A$ $I_C = 4\ A$	$V_{CE} = 2\ V$ for 2N6121/24 for 2N6122/25 for 2N6123/26 $V_{CE} = 2\ V$ for 2N6121/24 for 2N6122/25 for 2N6123/26	25 25 20 10 10 7	100 100 80	
h_{fe}	Small Signal Current Gain	$I_C = 1\ A$ $f = 1\ MHz$	$V_{CE} = 4\ V$	2.5		

* Pulsed : pulse duration = 300 μs , duty cycle = 1.5 %..
For PNP types voltage and current values are negative.

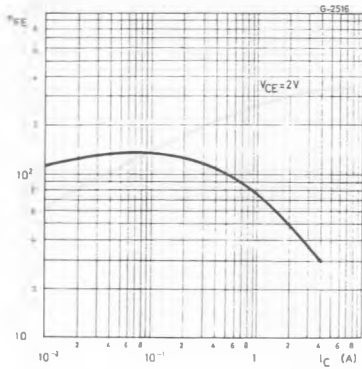
Safe Operating Areas.



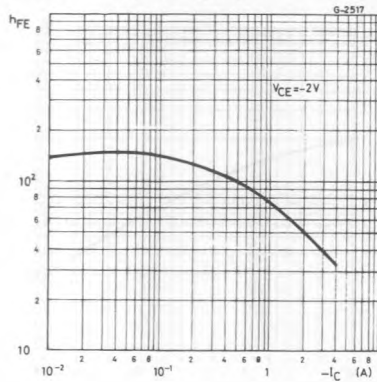
Power Rating Chart.



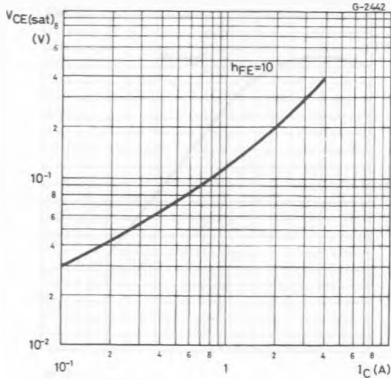
DC Current Gain (NPN types).



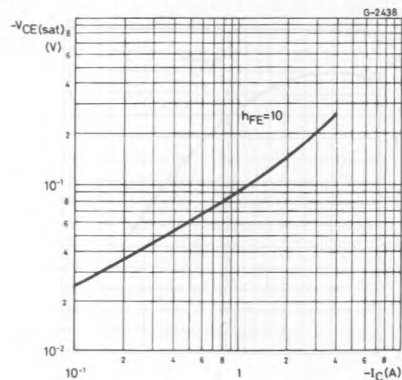
DC Current Gain (PNP types).



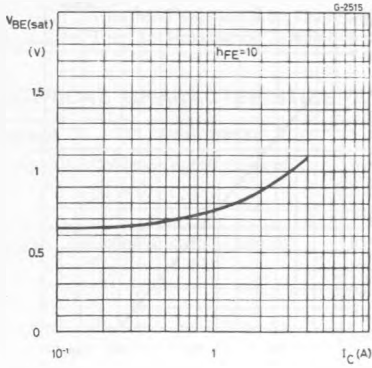
Collector-emitter Saturation Voltage (NPN types).



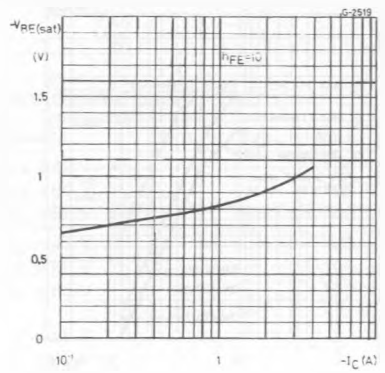
Collector-emitter Saturation Voltage (PNP types).



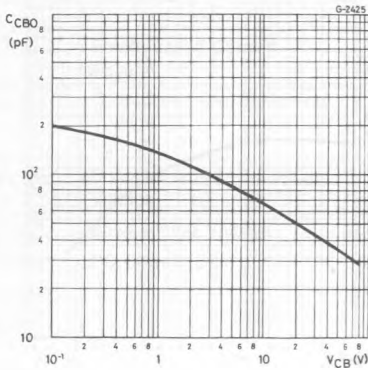
Base-emitter Saturation Voltage (NPN types).



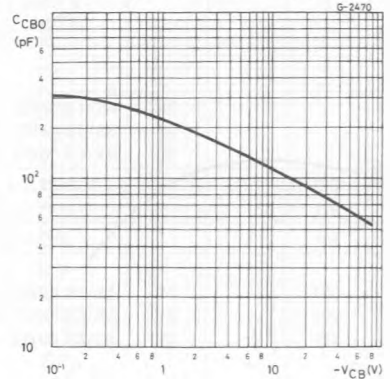
Base-emitter Saturation Voltage (PNP types).



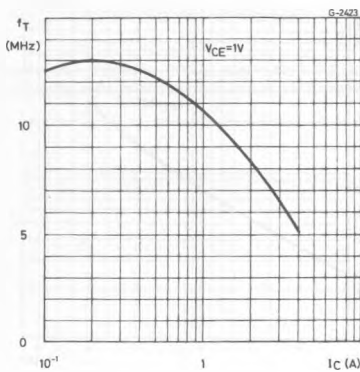
Collector-base Capacitance (NPN types).



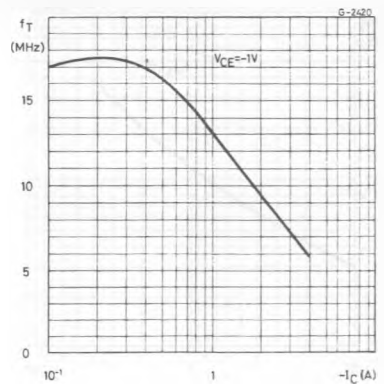
Collector-base Capacitance (PNP types).



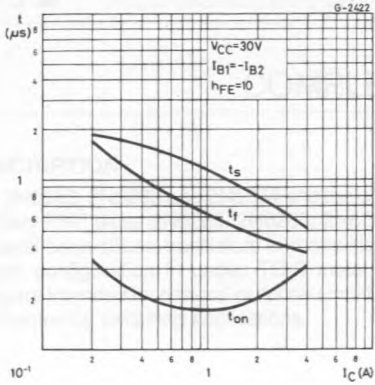
Transition Frequency (NPN types).



Transition Frequency (PNP types).



Saturated Switching Characteristics (NPN types).



Saturated Switching Characteristics (PNP types).

