NEC

SILICON TRANSISTORS
2SC3623, 3623A

NPN SILICON EPITAXIAL TRANSISTOR
FOR LOW-FREQUENCY POWER AMPLIFIERS AND SWITCHING

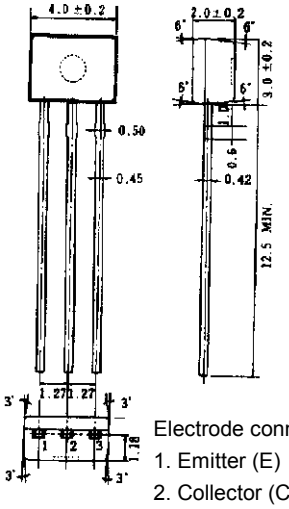
FEATURES

- High h_{FE}:
  h_{FE} = 1000 to 3200 @V_{CE} = 5.0 V, I_C = 1.0 mA
- Low $V_{CE(sat)}$:
  $V_{CE(sat)}$ = 0.07 V TYP. @I_C/I_B = 50 mA/5.0 mA
- High V_{EBO}:
  V_{EBO}: 12 V (2SC3623)
  V_{EBO}: 15 V (2SC3623A)

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Ratings		Unit
		2SC3623	2SC3623A	
Collector to base voltage	V_{CBO}	60		V
Collector to emitter voltage	V_{CEO}	50		V
Emitter to base voltage	V_{EBO}	12	15	V
Collector current (DC)	$I_{C(DC)}$	150		mA
Total power dissipation	P_T	250		mW
Junction temperature	T_j	150		°C
Storage temperature	T_{stg}	−55 to +150		°C

PACKAGE DRAWING (UNIT: mm)



Electrode connection
1. Emitter (E)
2. Collector (C)
3. Base (B)

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 50 V, I_E = 0			100	nA
Emitter cutoff current	I_{EBO}	V_{EB} = 10 V, I_C = 0			100	nA
DC current gain	h_{FE1}	V_{CE} = 5.0 V, I_C = 1.0 mA*	1000	1800	3200	–
DC current gain	h_{FE2}	V_{CE} = 5.0 V, I_C = 100 mA*	200	350		
DC base voltage	V_{BE}	V_{CE} = 5.0 V, I_C = 1.0 mA*		560		mV
Collector saturation voltage	$V_{CE(sat)}$	I_C = 50 mA, I_B = 5.0 mA*		0.07	0.30	V
Base saturation voltage	$V_{BE(sat)}$	I_C = 50 mA, I_B = 5.0 mA*		0.8	1.2	V
Gain bandwidth product	f_T	V_{CE} = 5.0 V, I_E = –10 mA		250		MHz
Output capacitance	C_{ob}	V_{CB} = 5 V, I_E = 0, f = 1.0 MHz		3.0		pF
Turn-on time	t_{on}	V_{CC} = 10 V, $V_{BE(off)}$ = –2.7 V		0.13		μs
Storage time	t_{stg}	I_C = 50 mA		0.72		μs
Turn-off time	t_{off}	I_{B1} = –I_{B2} = 1 mA		1.22		μs

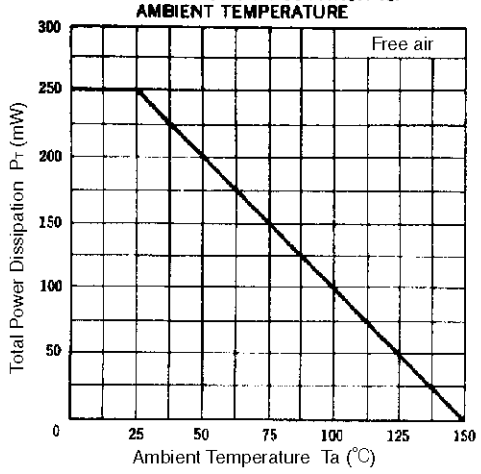
* Pulse test PW ≤ 350 μs, duty cycle ≤ 2%

h_{FE} CLASSIFICATION

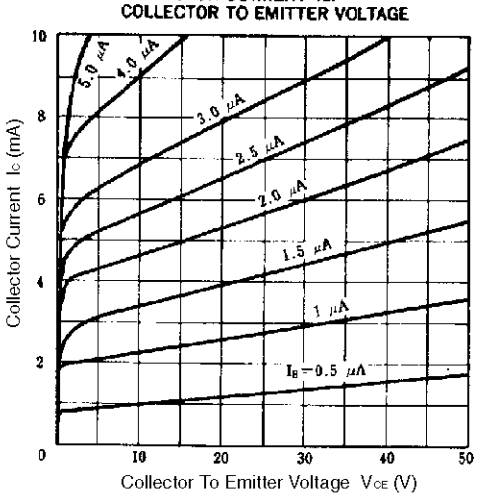
Marking	L	K
h_{FE1}	1000 to 2000	1600 to 3200

TYPICAL CHARACTERISTICS (Ta = 25°C)

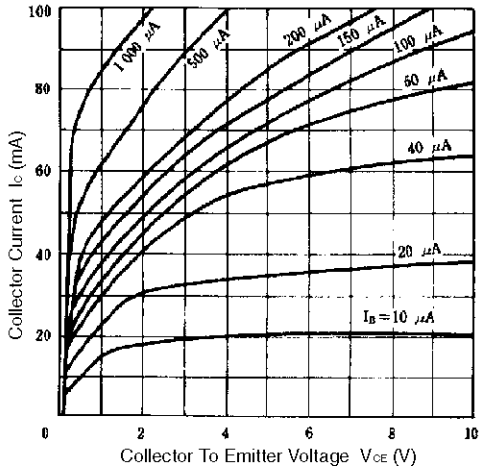
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



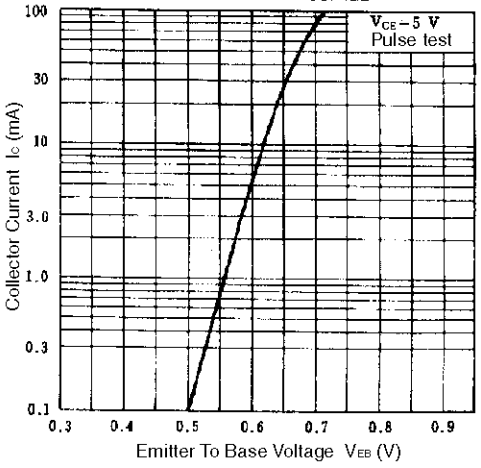
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



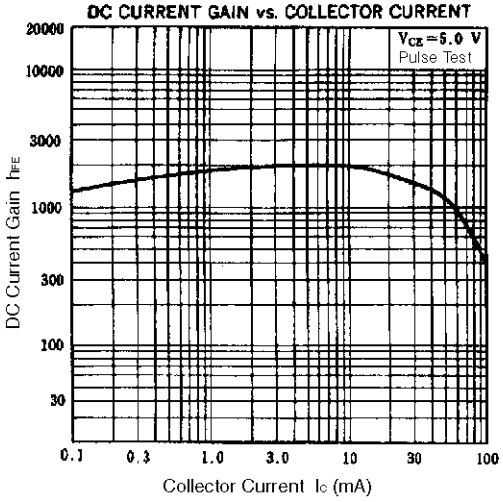
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



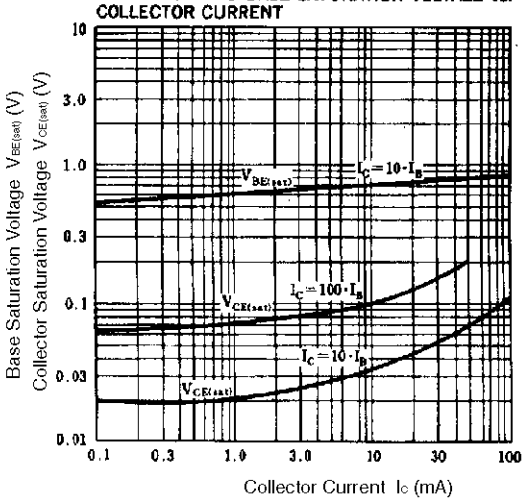
COLLECTOR CURRENT vs. EMITTER TO BASE VOLTAGE



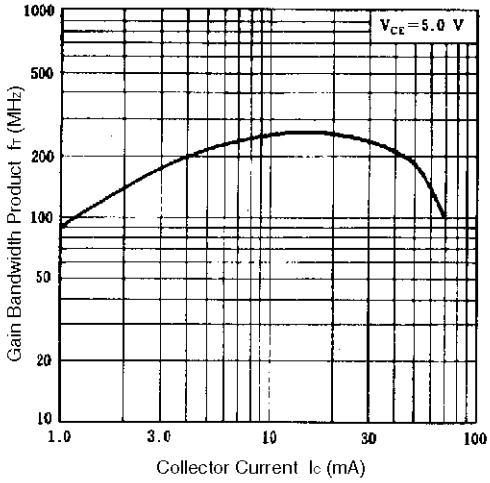
DC CURRENT GAIN vs. COLLECTOR CURRENT



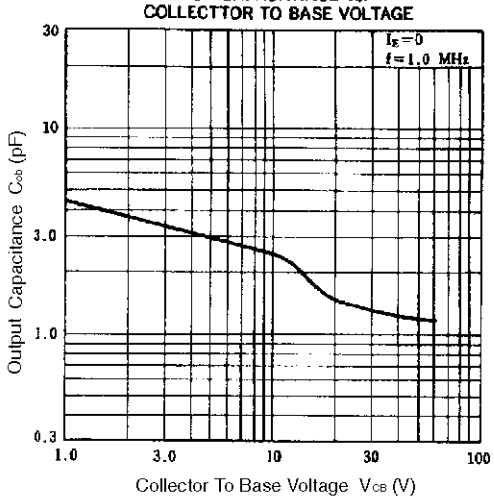
COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



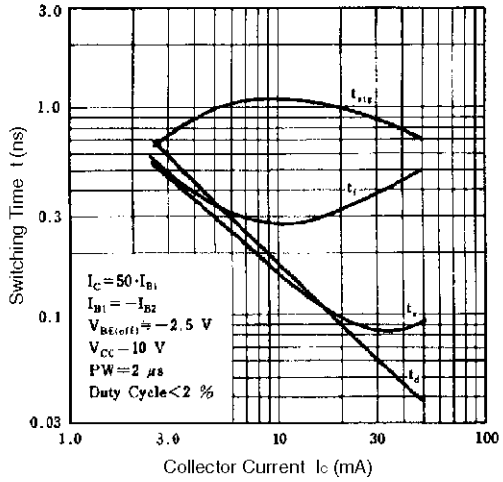
GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT



OUTPUT CAPACITANCE vs. COLLECTTOR TO BASE VOLTAGE



SWITCHING TIME vs. COLLECTOR CURRENT



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