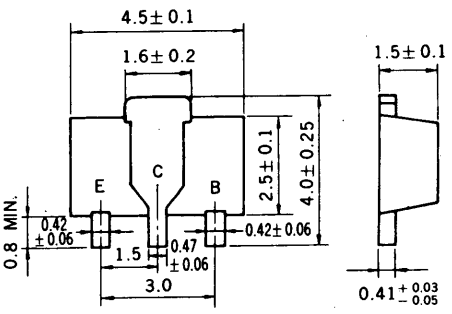
DATA SHEET

NEC

SILICON TRANSISTOR
2SA1463

HIGH SPEED SWITCHING
PNP SILICON EPITAXIAL TRANSISTOR
POWER MINI MOLD

PACKAGE DIMENSIONS
in millimeters



1. Emitter
2. Collector
3. Base

DESCRIPTION The 2SA1463 is designed for power amplifier and high speed switching applications.

FEATURES

- High speed, high voltage switching.
- Low Collector Saturation Voltage.
- Complementary to the NEC 2SC3736 NPN transistor.

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Currents (T_a = 25 °C)			
Collector to Base Voltage	V_{CBO}	−60	V
Collector to Emitter Voltage	V_{CEO}	−45	V
Emitter to Base Voltage	V_{EBO}	−5.0	V
Collector Current (DC)	I_C	−1.0	A
Collector Current (Pulse)*	I_C	−2.0	A
Maximum Power Dissipation			
Total Power Dissipation at 25 °C Ambient Temperature**	P_T	2.0	W
Maximum Temperatures			
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55 to +150	°C

* PW ≦ 10 ms, Duty Cycle ≦ 50 %
** When mounted on ceramic substrate of 16 cm² x 0.7 mm

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDICTIONS
Collector Cutoff Current	I_{CES}			−0.5	μA	V_{CE} = −45 V, R_{BE} = 0
Emitter Cutoff Current	I_{EBO}			−0.5	μA	V_{EB} = −4.0 V, I_C = 0
DC Current Gain	h_{FE1}***	60		200		V_{CE} = −10 V, I_C = −50 mA
DC Current Gain	h_{FE2}***	60				V_{CE} = −10 V, I_C = −500 mA
Collector Saturation Voltage	$V_{CE(sat)}$***		−0.26	−0.6	V	I_C = −500 mA, I_B = −50 mA
Base Saturation Voltage	$V_{BE(sat)}$***		−0.98	−1.2	V	
Gain Bandwidth Product	f_T	300	400		MHz	V_{CE} = −10 V, I_E = 100 mA
Output Capacitance	C_{ob}		11	25	pF	V_{CB} = −10 V, I_E = 0, f = 1.0 MHz
Turn-on Time	t_{on}		25	40	ns	I_C = −500 mA I_{B1} = −I_{B2} ≒ −50 mA
Storage Time	t_{stg}		46	70	ns	
Turn-off Time	t_{off}		62	100	ns	

***Pulsed: PW ≦ 350 μs, Duty Cycle ≦ 2 %

h_{FE} Classification

MARKING	IL	IK
h_{FE}	60 to 120	100 to 200

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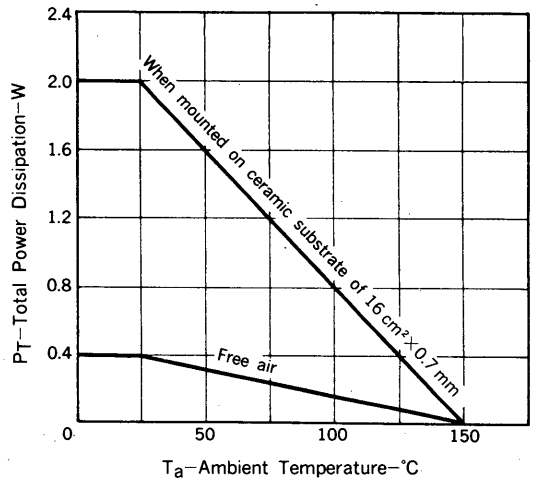
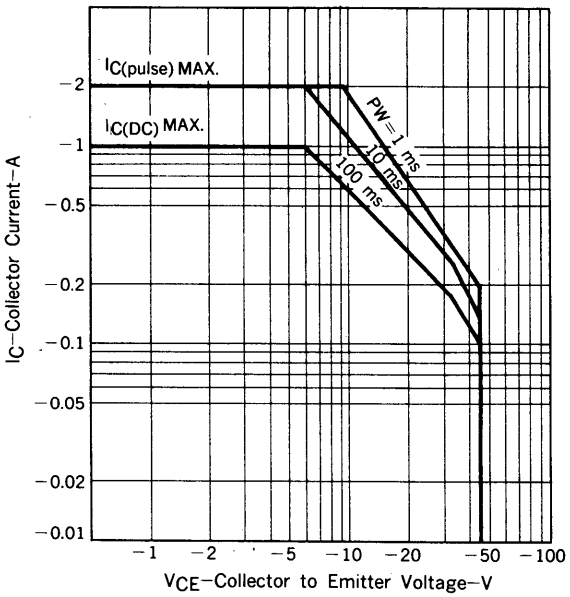
TYPICAL CHARACTERISTICS (T_a = 25 °C)

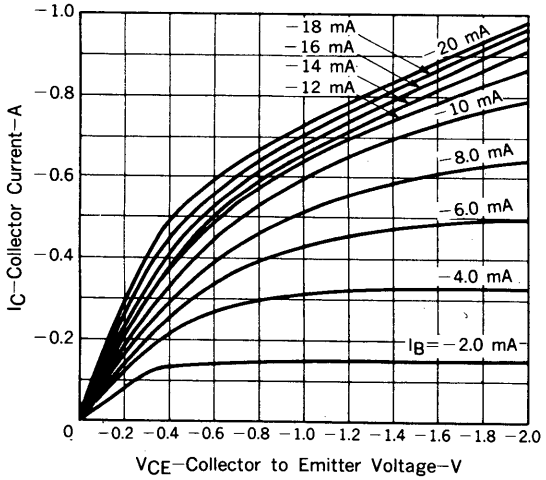
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



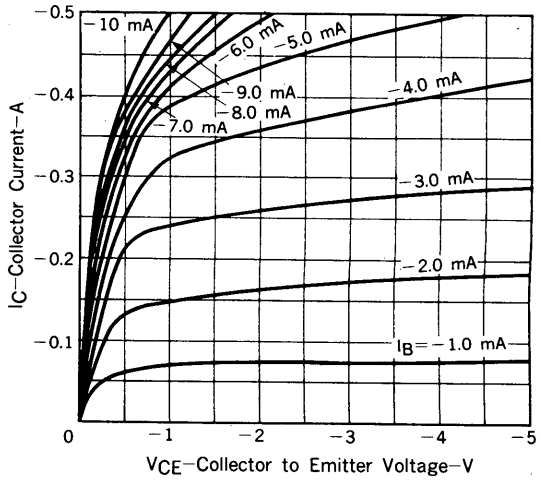
SAFE OPERATING AREA (TRANSIENT THERMAL RESISTANCE METHOD)



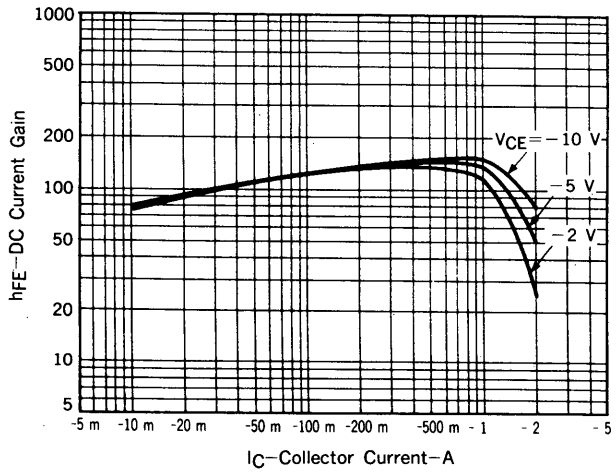
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



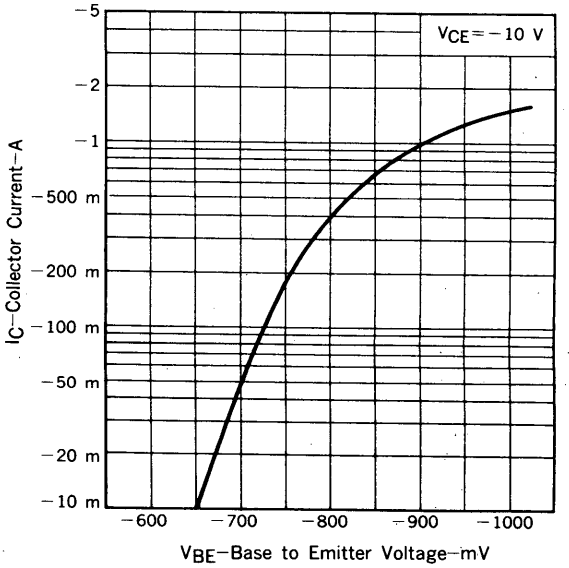
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



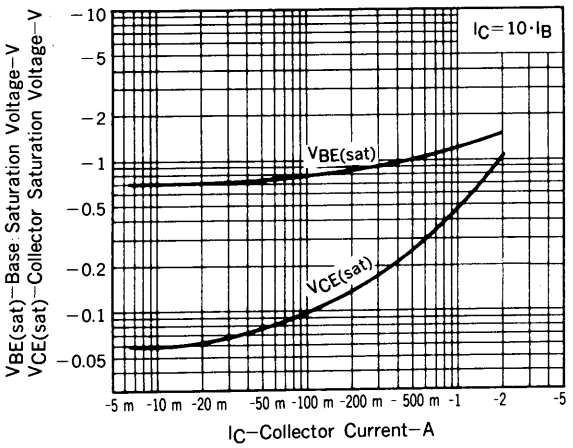
DC CURRENT GAIN vs. COLLECTOR CURRENT



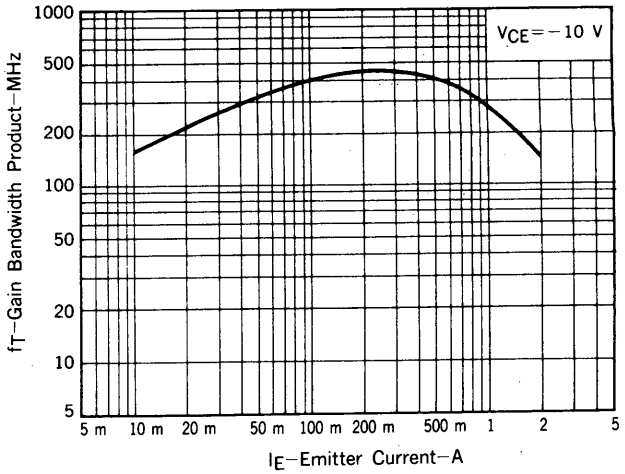
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



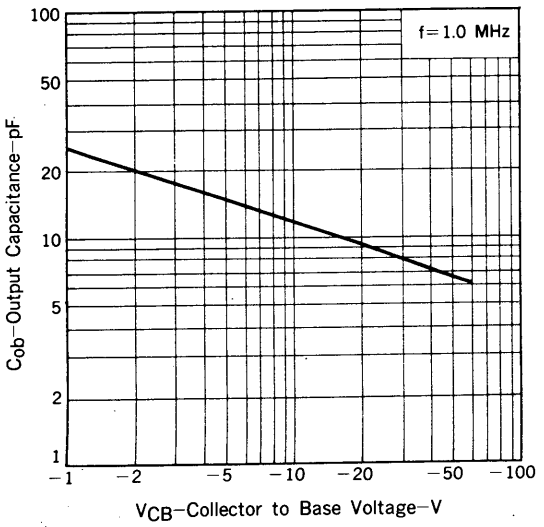
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



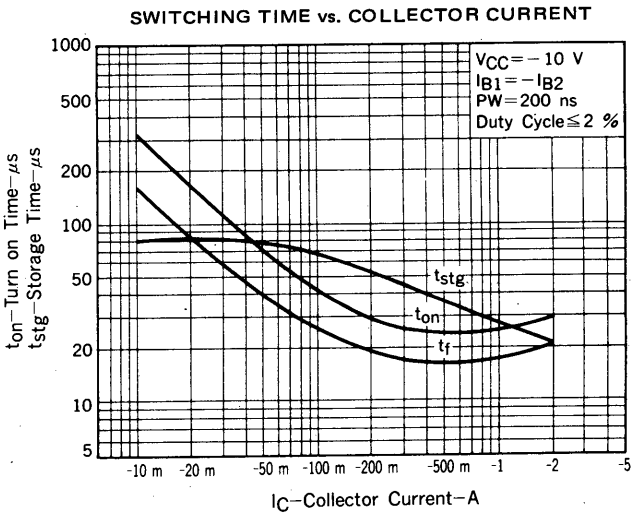
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



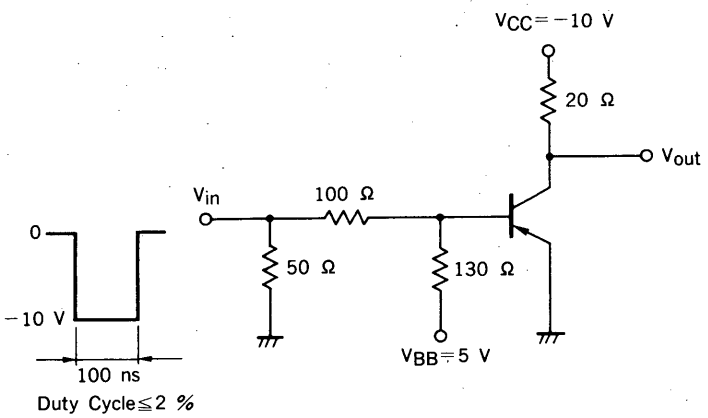
OUTPUT CAPACITANCE vs. REVERSE VOLTAGE

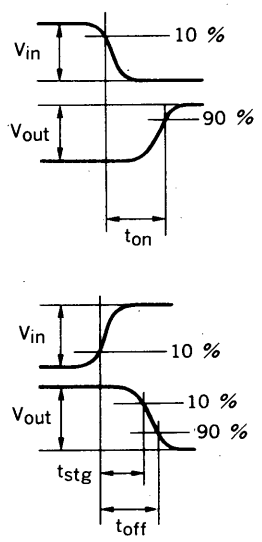


SWITCHING TIME vs. COLLECTOR CURRENT



SWITCHING TIME TEST CIRCUIT





REFERENCE

Document Name	Document No.
NEC semiconductor device reliability/quality control system.	TEI-1202
Quality grade on NEC semiconductor devices.	IEI-1209
Semiconductor device mounting technology manual.	IEI-1207
Semiconductor device package manual.	IEI-1213
Guide to quality assurance for semiconductor devices.	MEI-1202
Semiconductor selection guide.	MF-1134

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