



2SD1664

NPN SILICON TRANSISTOR

MEDIUM POWER NPN TRANSISTOR

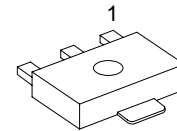
DESCRIPTION

The UTC 2SD1664 is an epitaxial planar type NPN silicon transistor.

FEATURES

*Low $V_{CE(SAT)}$: $V_{CE(SAT)} = 0.15V(Typ)$
($I_C/I_B = 500mA/50mA$)

*Complement the 2SB1132.



SOT-89

*Pb-free plating product number: 2SD1664L

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
2SD1664-x-AB3-R	2SD1664L-x-AB3-R	SOT-89	B	C	E	Tape Reel

<p>2SD1664L-x-AB3-R</p> <p>(1) Packing Type (2) Package Type (3) Rank (4) Lead Plating</p>	<p>(1) R: Tape Reel (2) AB3: SOT-89 (3) x: refer to Classification of h_{FE} (4) L: Lead Free Plating, Blank: Pb/Sn</p>
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NPN SILICON TRANSISTOR

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	40	V
Collector-Emitter Voltage		V_{CEO}	32	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current	DC	I_C	1	A
Collector Current (Duty=1/2, PW=20ms)	Pulse		2	A
Collector Power Dissipation		P_C	0.5	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Base Breakdown Voltage	BV_{CBO}	$I_C = 50\mu A$	40			V
Collector Emitter Breakdown Voltage	BV_{CEO}	$I_C = 1mA$	32			V
Emitter Base Breakdown Voltage	BV_{EBO}	$I_E = 50\mu A$	5			V
Collector Cut-Off Current	I_{CBO}	$V_{CB} = 20V$			0.5	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB} = 4V$			0.5	μA
DC Current Gain	h_{FE}	$V_{CE} = 3V, I_C = 100mA$	82		390	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C/I_B = 500mA/50mA$		0.15	0.4	V
Transition Frequency	f_T	$V_{CE} = 5V, I_E = -50mA, f = 100MHz$		150		MHz
Output Capacitance	C_{ob}	$V_{CB} = 10V, I_E = 0A, f = 1MHz$		15		pF

■ CLASSIFICATION OF h_{FE}

RANK	P	Q	R
RANGE	82-180	120-270	180-390

■ TYPICAL CHARACTERISTICS

Figure 1. Grounded Emitter Propagation Characteristics

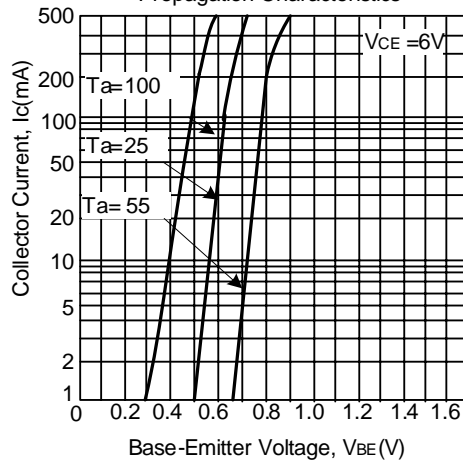


Figure 2. Grounded Emitter Output Characteristics

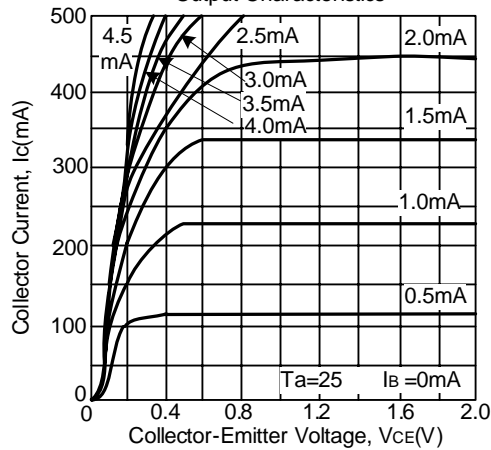


Figure 3. DC Current Gain vs. Collector Current (I)

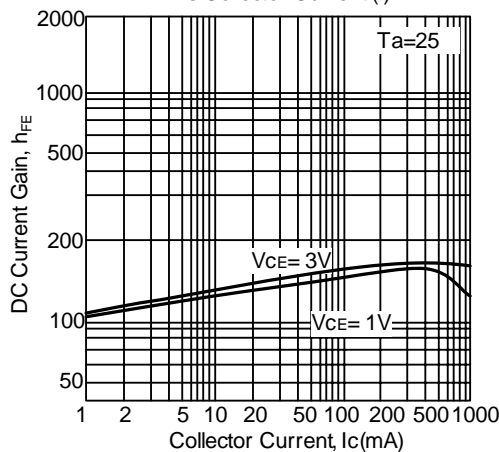


Figure 4. DC Current Gain vs. Collector Current (II)

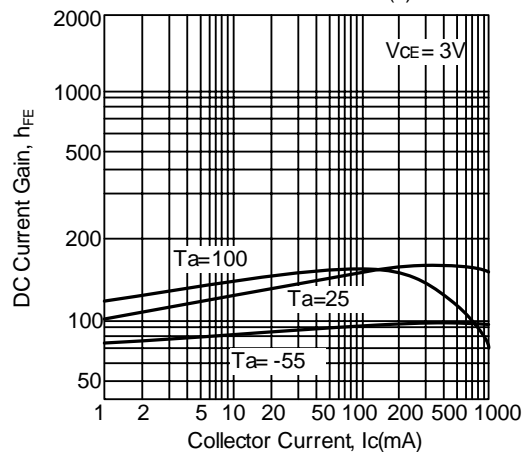


Figure 5. Collector-Emitter Saturation Voltage vs. Collector Current (I)

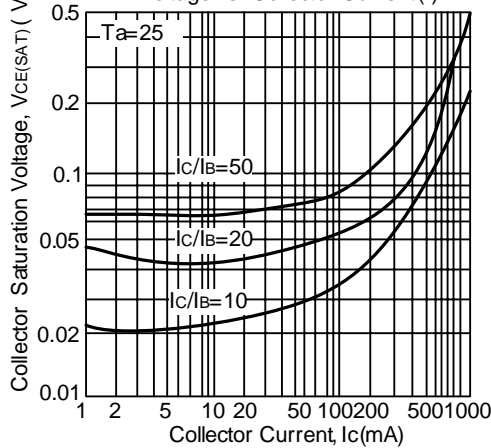
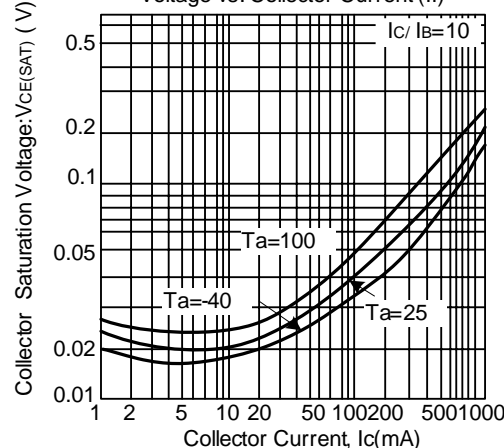


Figure 6. Collector-Emitter Saturation Voltage vs. Collector Current (II)



■ TYPICAL CHARACTERISTICS(Cont.)

Figure 7. Gain Bandwidth Product vs. Emitter Current

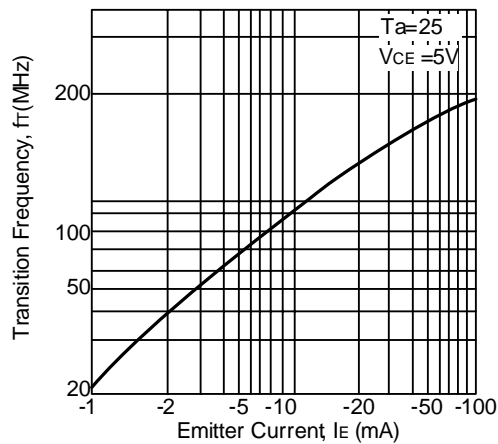


Figure 8. Collector Output Capacitance vs. Collector-Base Voltage

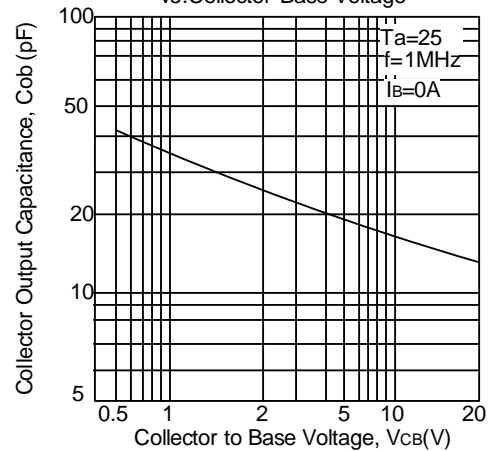


Figure 9. Safe Operation Area

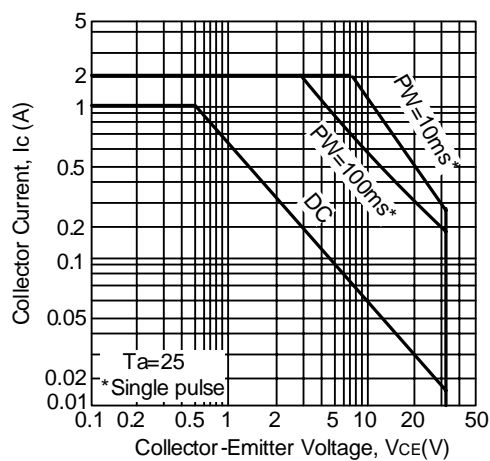
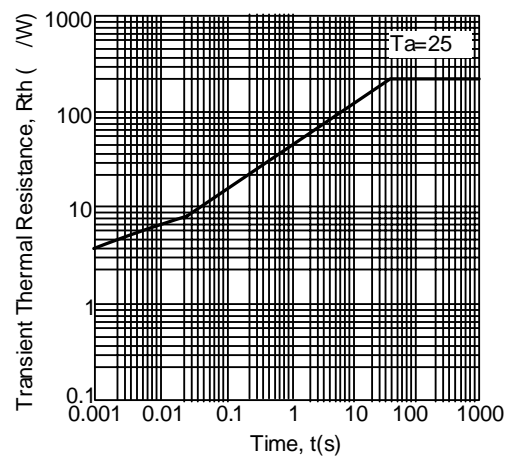


Figure 10. Transient Thermal Resistance



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