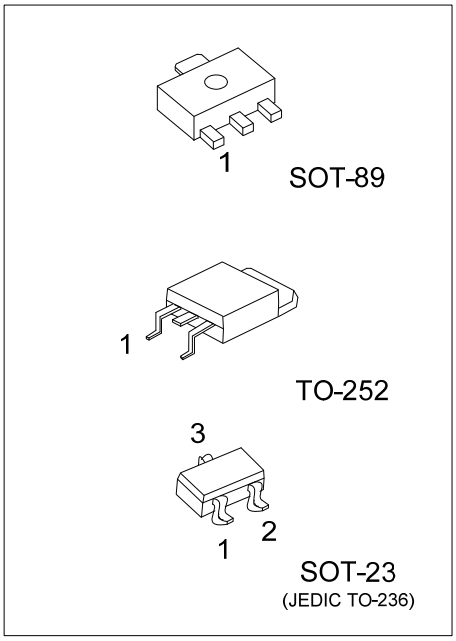
2SD1664

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.

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SD1664L-x-AB3-R	2SD1664G-x-AB3-R	SOT-89	B	C	E	Tape Reel
2SD1664L-x-AE3-R	2SD1664G-x-AE3-R	SOT-23	B	E	C	Tape Reel
2SD1664L-x-TN3-R	2SD1664G-x-TN3-R	TO-252	B	C	E	Tape Reel

Note: Pin Assignment: B: Base C: Collector E: Emitter

2SD1664G-x-AB3-R (1)Packing Type (2)Package Type (3)Rank (4)Green Package	(1) R: Tape Reel (2) AB3: SOT-89, AE3: SOT-23, TN3: TO-252 (3) x: refer to Classification of h_{FE} (4) G: Halogen Free and Lead Free, L: Lead Free

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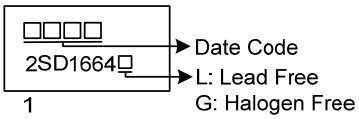
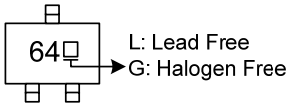
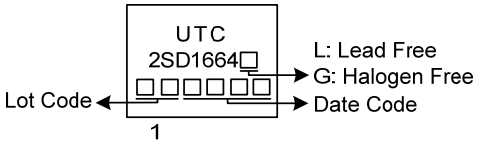
■ MARKING

PACKAGE	MARKING
SOT-89	
SOT-23	
TO-252	

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

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, P_W=20ms)	Pulse		2	A
Collector Power Dissipation	SOT-89	P_C	0.5	W
	SOT-23		0.3	W
	TO-252		1.9	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.

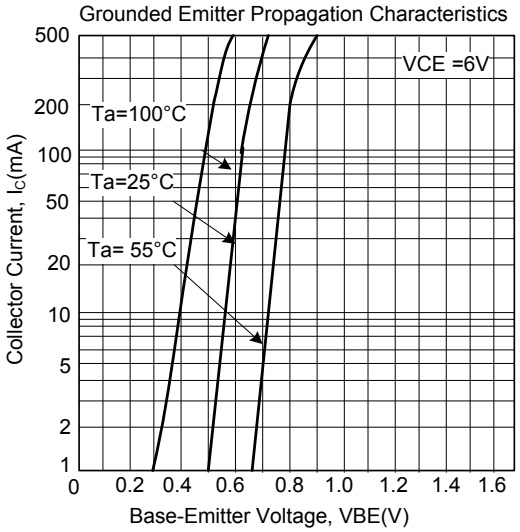
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

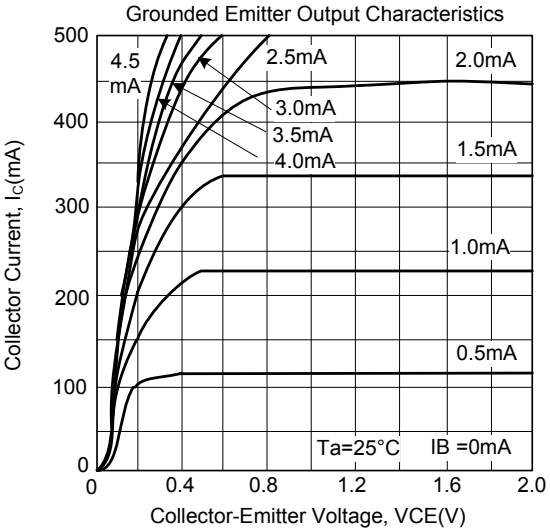
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Base Breakdown Voltage	BV_{CBO}	I_C= 50μA	40			V
Collector Emitter Breakdown Voltage	BV_{CEO}	I_C= 1mA	32			V
Emitter Base Breakdown Voltage	BV_{EBO}	I_E=50μA	5			V
Collector Cut-Off Current	I_{CBO}	V_{CB}=20V			0.5	μA
Emitter Cut-Off Current	I_{EBO}	V_{EB}= 4V			0.5	μA
DC Current Gain	h_{FE}	V_{CE}= 3V, Ic= 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

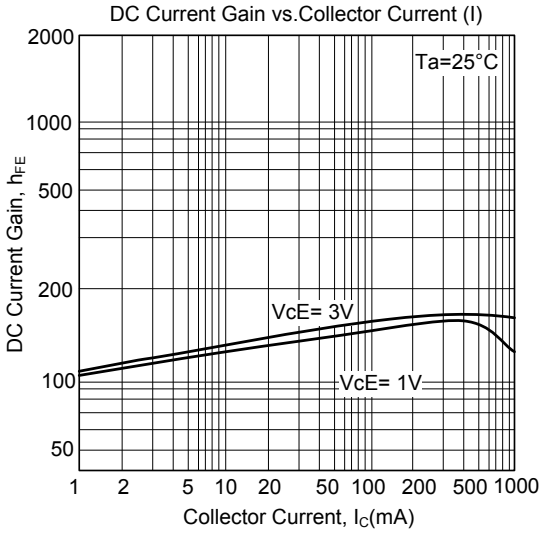
■ CLASSIFICATION OF h_{FE}

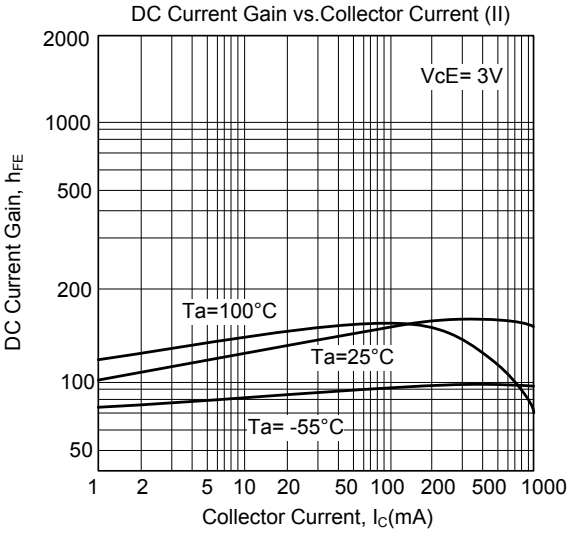
RANK	P	Q	R
RANGE	82-180	120-270	180-390

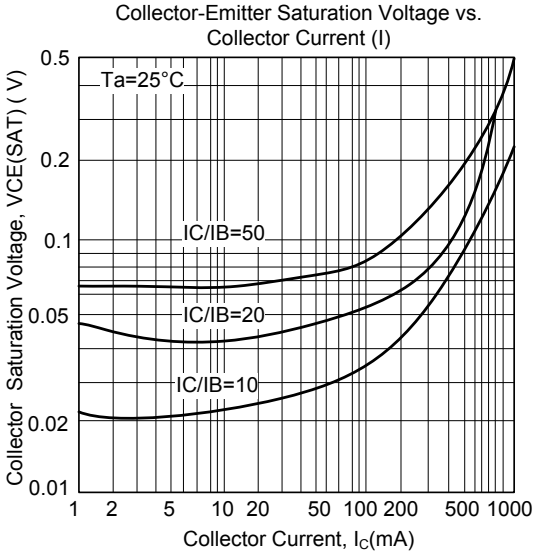
■ TYPICAL CHARACTERISTICS

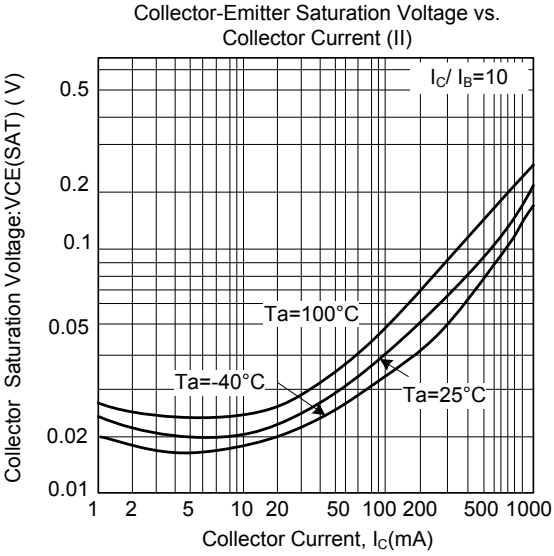






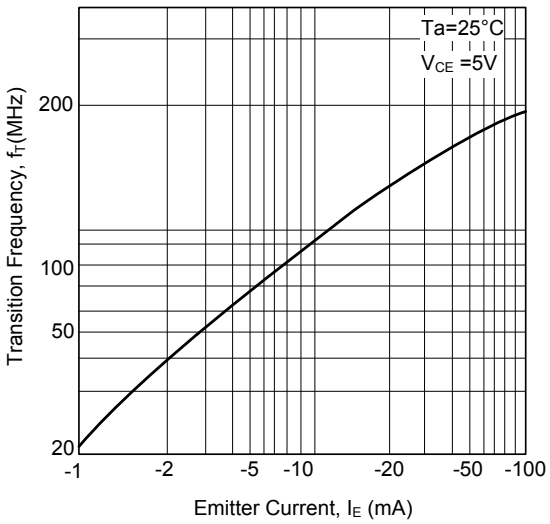




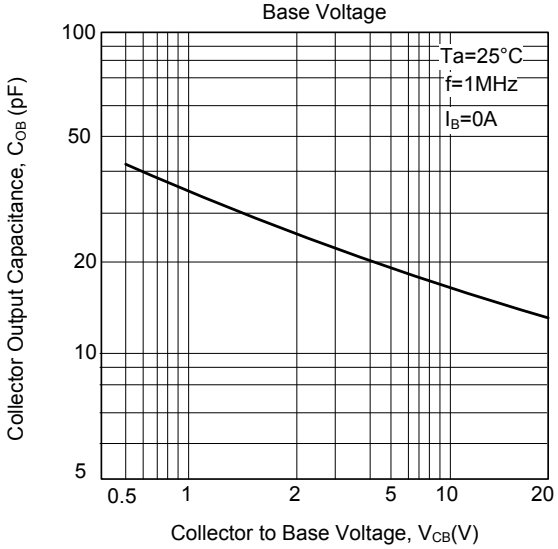


■ TYPICAL CHARACTERISTICS (Cont.)

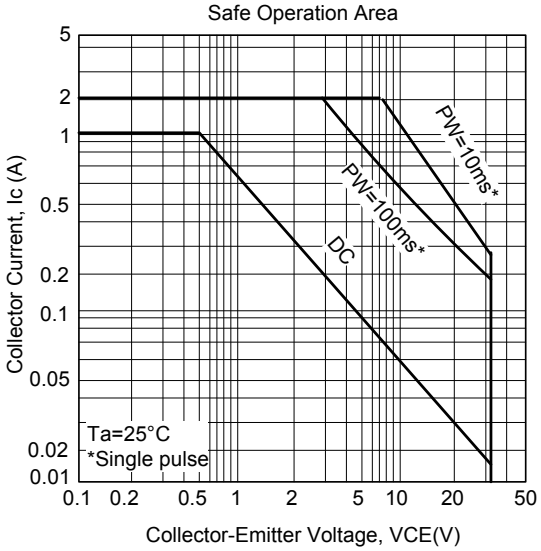
Gain Bandwidth Product vs. Emitter Current



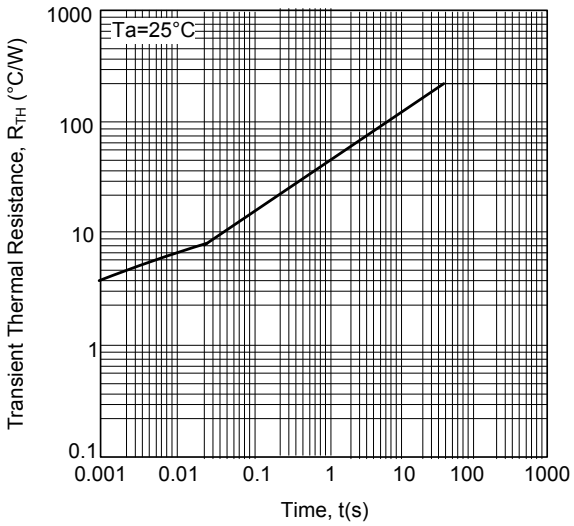
Collector Output Capacitance vs.Collector-Base Voltage



Safe Operation Area



Transient Thermal Resistance



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