



## 2SD1664

## NPN SILICON TRANSISTOR

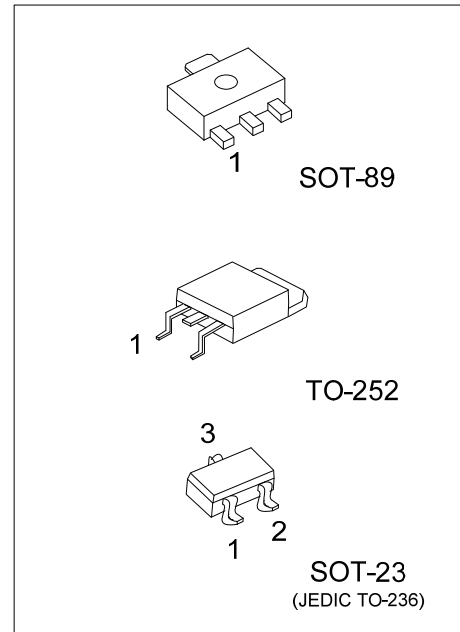
### MEDIUM POWER NPN TRANSISTOR

#### 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.



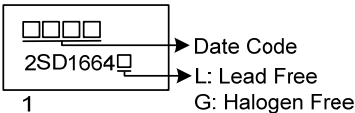
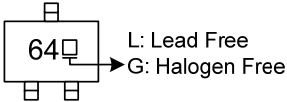
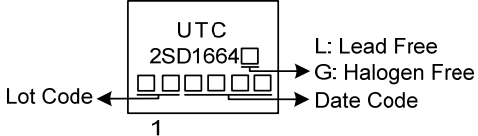
#### ORDERING INFORMATION

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

<p>2SD1664G-x-AB3-R</p>	<p>(1) R: Tape Reel</p> <p>(2) AB3: SOT-89, AE3: SOT-23, TN3: TO-252</p> <p>(3) x: refer to Classification of <math>h_{FE}</math></p> <p>(4) G: Halogen Free and Lead Free, L: Lead Free</p>
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### MARKING

PACKAGE	MARKING
SOT-89	 <p>                     Date Code                      L: Lead Free                      G: Halogen Free                 </p>
SOT-23	 <p>                     L: Lead Free                      G: Halogen Free                 </p>
TO-252	 <p>                     Lot Code                      L: Lead Free                      G: Halogen Free                      Date Code                 </p>

■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ , 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, $P_W=20\text{ms}$ )	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	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

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.

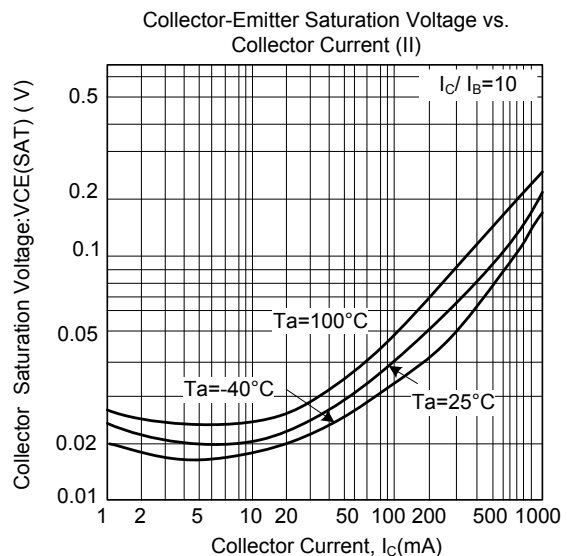
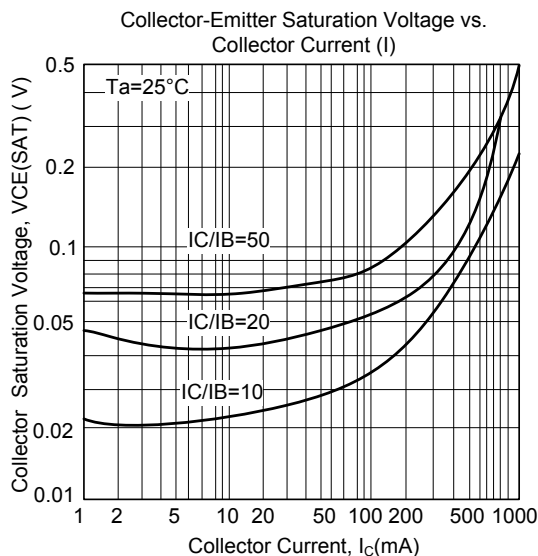
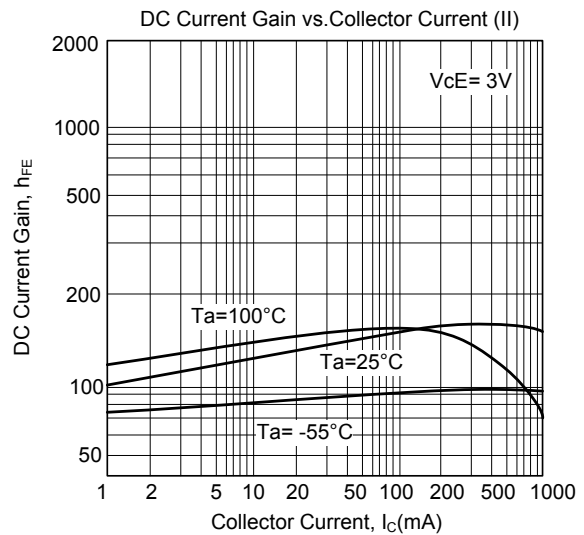
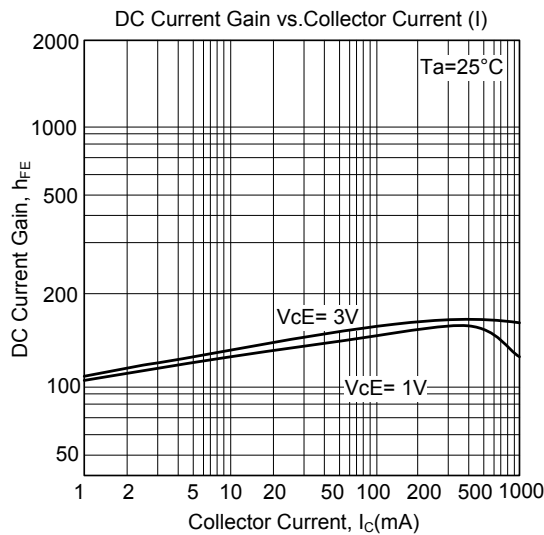
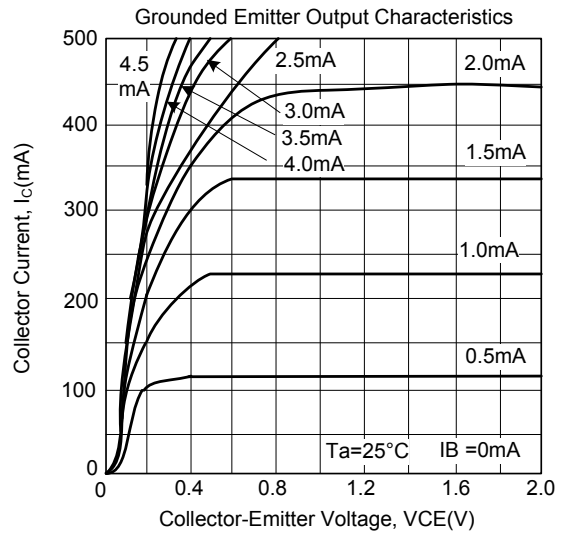
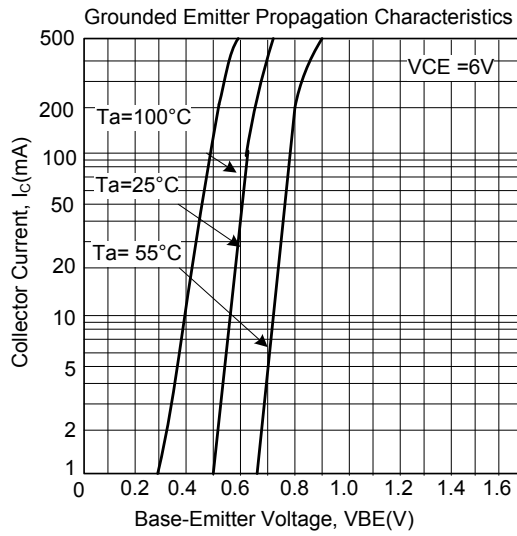
■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

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

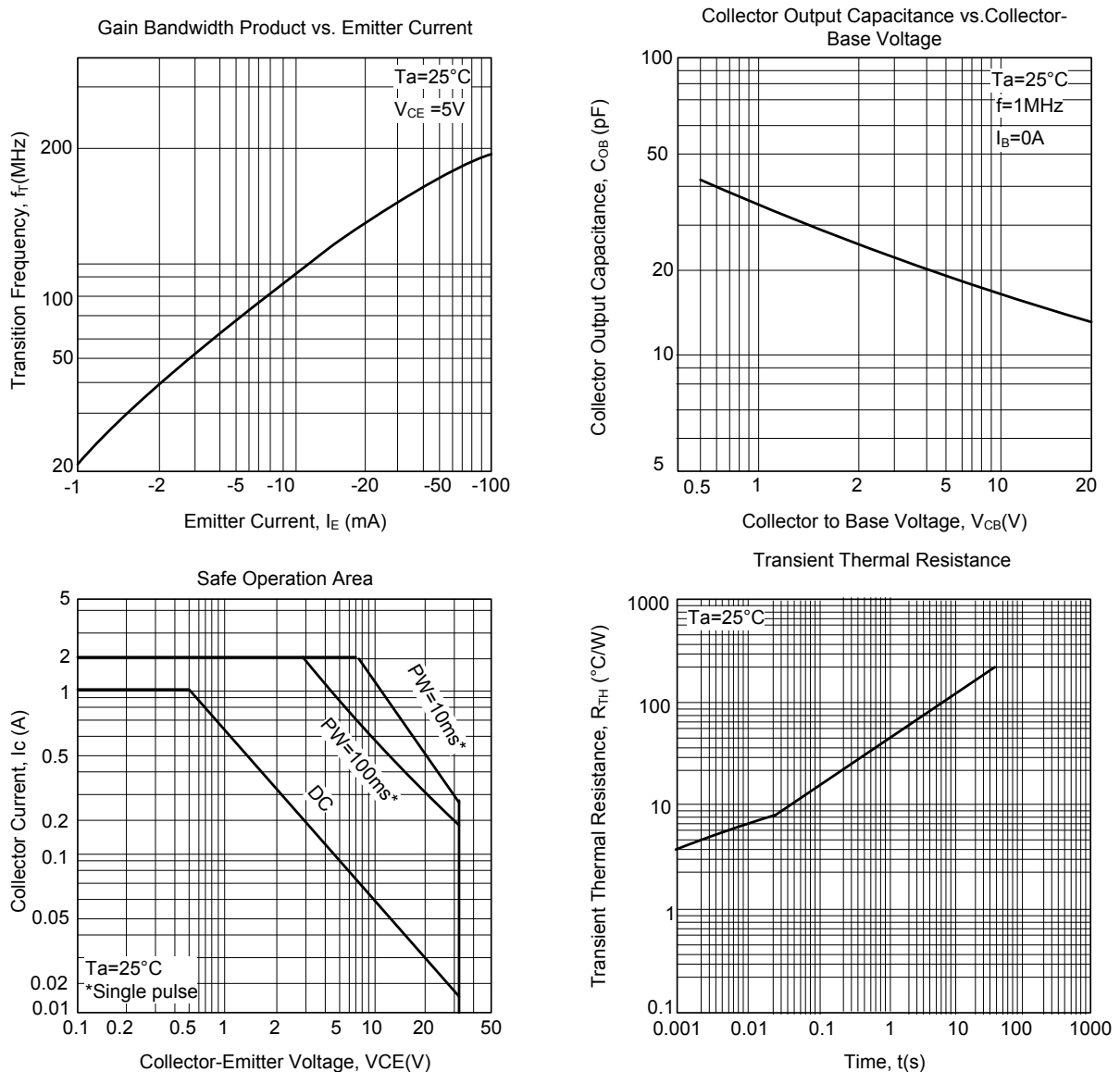
■ CLASSIFICATION OF  $h_{FE}$

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

## TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS (Cont.)



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