



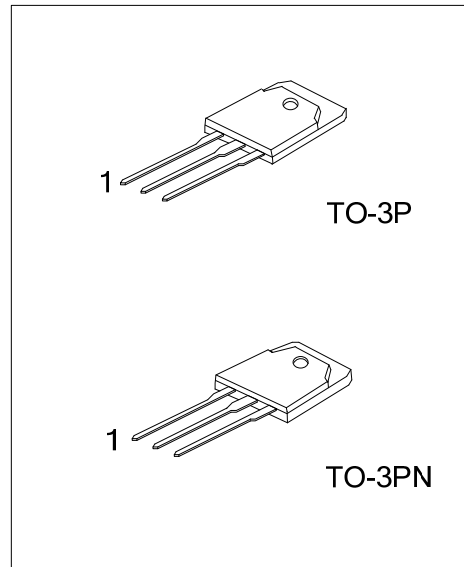
**2SC3320**

**NPN EPITAXIAL SILICON TRANSISTOR**

**HIGH VOLTAGE HIGH SPEED SWITCHING**

■ **FEATURES**

- \* High voltage, high speed switching
- \* High reliability



■ **ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SC3320L-x-T3P-T	2SC3320L-x-T3P-T	TO-3P	B	C	E	Tube
2SC3320L-x-T3N-T	2SC3320L-x-T3N-T	TO-3PN	B	C	E	Tube

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

<p>2SC3320L-x-T3P-T</p>	<p>(1) T: Tube                  (2) T3P: TO-3P, T3N: TO-3PN                  (3) x: reference to Classification of <math>h_{FE}</math>                  (4) L: Lead Free, G: Halogen Free</p>
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■ **MARKING INFORMATION**

PACKAGE	MARKING
TO-3P TO-3PN	<p>UTC                      2SC3320                      Lot Code                      Data Code                      L: Lead Free                      G: Halogen Free</p>

■ ABSOLUTE MAXIMUM RATINGS (T<sub>c</sub> = 25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector Base Voltage	V <sub>CBO</sub>	500	V
Collector Emitter Voltage	V <sub>CEO</sub>	400	V
	V <sub>CEO(SUS)</sub>	400	V
Emitter Base Voltage	V <sub>EBO</sub>	7	V
Collector Current	I <sub>C</sub>	15	A
Base Current	I <sub>B</sub>	5	A
Power Dissipation	P <sub>D</sub>	80	W
Junction Temperature	T <sub>J</sub>	+150	°C
Storage Temperature	T <sub>STG</sub>	-40 ~ +150	°C

Note 1. 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.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	θ <sub>JC</sub>	1.55	°C/W

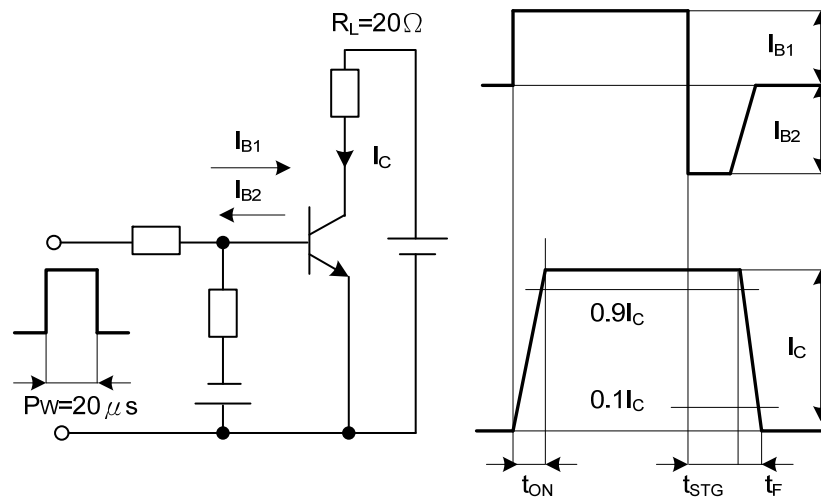
■ ELECTRICAL SPECIFICATIONS (T<sub>c</sub>=25°C, Unless Otherwise Specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Base Voltage	V <sub>CBO</sub>	I <sub>CBO</sub> =1mA	500			V
Collector Emitter Voltage	V <sub>CEO</sub>	I <sub>CEO</sub> =10mA	400			V
	V <sub>CEO(SUS)</sub>	I <sub>C</sub> =0.2A	400			V
Emitter Base Voltage	V <sub>EBO</sub>	I <sub>EBO</sub> =1mA	7			V
Collector Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	I <sub>C</sub> =6A, I <sub>B</sub> =1.2A			1	V
Base Emitter Saturation Voltage	V <sub>BE(SAT)</sub>				1.5	V
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CBO</sub> =500V			1	mA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EBO</sub> =7V			1	mA
DC Current Gain	h <sub>FE</sub>	I <sub>C</sub> =6A, V <sub>CE</sub> =5V	10		45	
Switching Time	t <sub>ON</sub>	I <sub>C</sub> =7.5A, I <sub>B1</sub> =1.5A, I <sub>B2</sub> =-3A R <sub>L</sub> =20Ω, P <sub>W</sub> =20μs, Duty ≤ 2%			0.5	μs
	t <sub>STG</sub>				1.5	μs
	t <sub>F</sub>				0.15	μs

■ CLASSIFICATION OF h<sub>FE</sub>

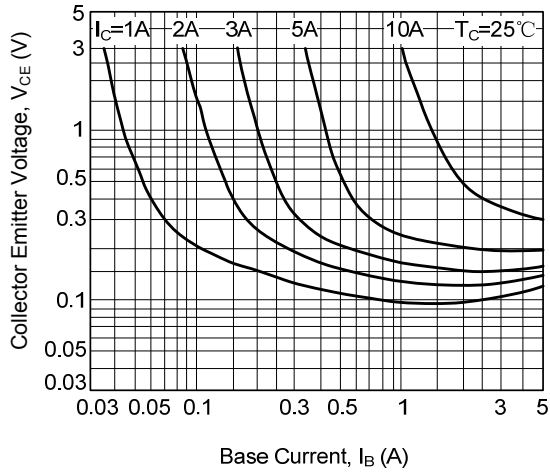
RANK	A	B	C	D	E	F
RANGE	10~15	15~20	20~25	25~30	30~35	35~45

■ SWITCHING TIME TEST CIRCUIT

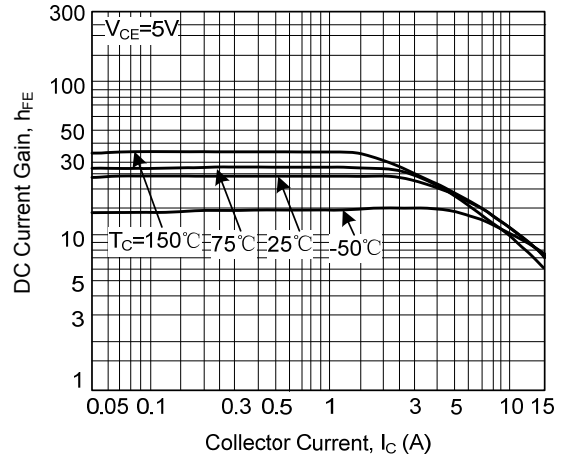


## TYPICAL CHARACTERISTICS

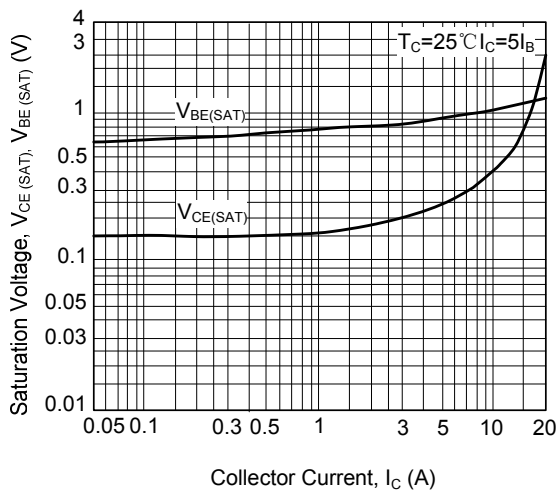
Collector Output Characteristics



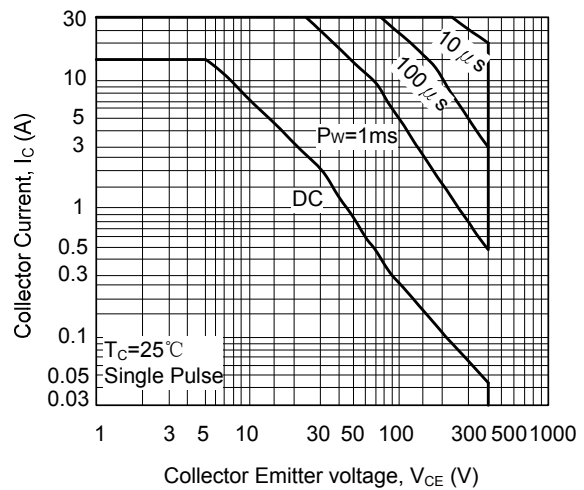
DC Current Gain



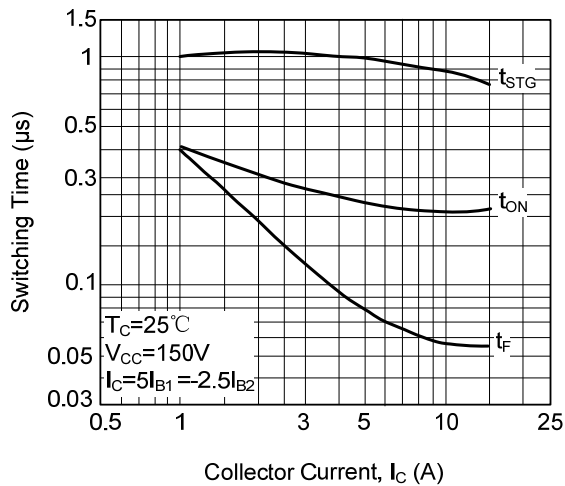
Base and Collector Saturation Voltage



Safe Operating Area



Switching Time



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