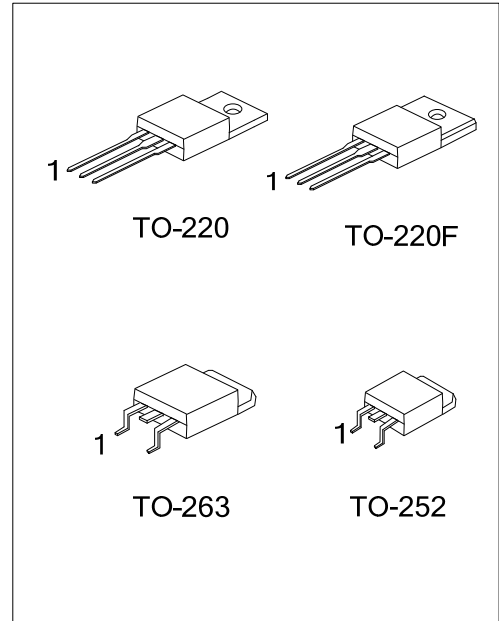


**2SD313****NPN SILICON TRANSISTOR****NPN EPITAXIAL PLANAR TRANSISTOR****DESCRIPTION**

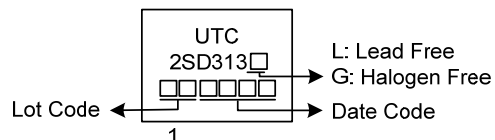
The UTC **2SD313** is designed for use in general purpose amplifier and switching applications.

**ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SD313L-x-TA3-T	2SD313G-x-TA3-T	TO-220	B	C	E	Tube
2SD313L-x-TF3-T	2SD313G-x-TF3-T	TO-220F	B	C	E	Tube
2SD313L-x-TN3-R	2SD313G-x-TN3-R	TO-252	B	C	E	Tape Reel
2SD313L-x-TQ2-T	2SD313G-x-TQ2-T	TO-263	B	C	E	Tube
2SD313L-x-TQ2-R	2SD313G-x-TQ2-R	TO-263	B	C	E	Tape Reel

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

2SD313G-x-TA3-T (1) Packing Type (2) Package Type (3) Rank (4) Green Package	(1) T: Tube, R: Tape Reel (2) TA3: TO-220, TF3: TO-220F, TN3: TO-252 TQ2: TO-263 (3) x: refer to Classification of h_{FE} (4) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

■ **ABSOLUTE MAXIMUM RATINGS** ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	60	V
Collector-Emitter Voltage		V_{CEO}	60	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current		I_{C}	3	A
Collector Dissipation	TO-220	P_{C}	1.75	W
	TO-220F		1.6	W
	TO-252		1.1	W
	TO-263		1.73	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.

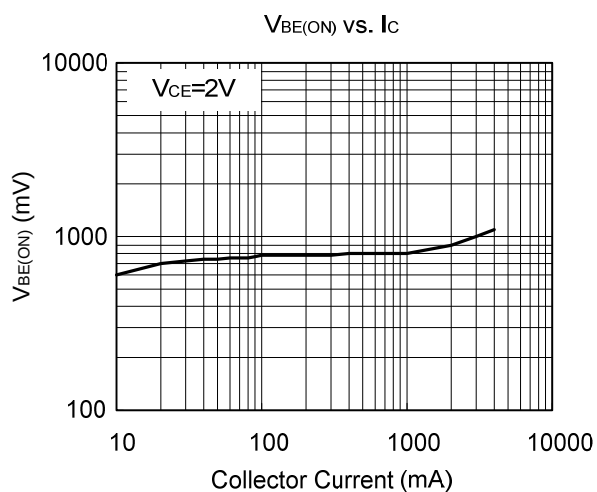
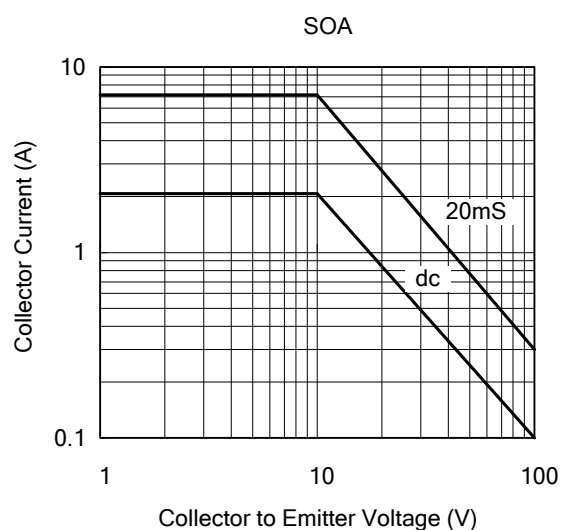
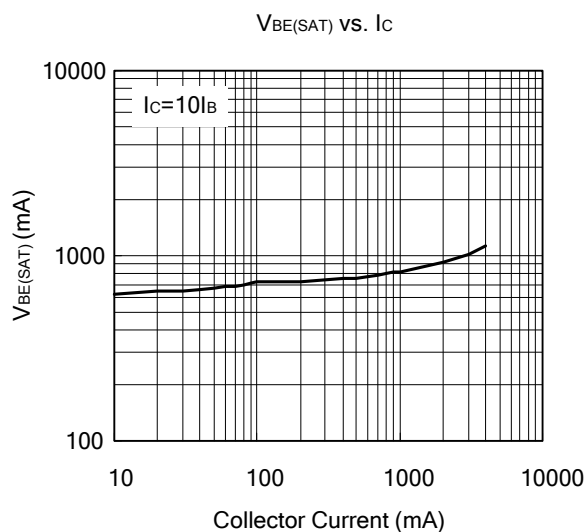
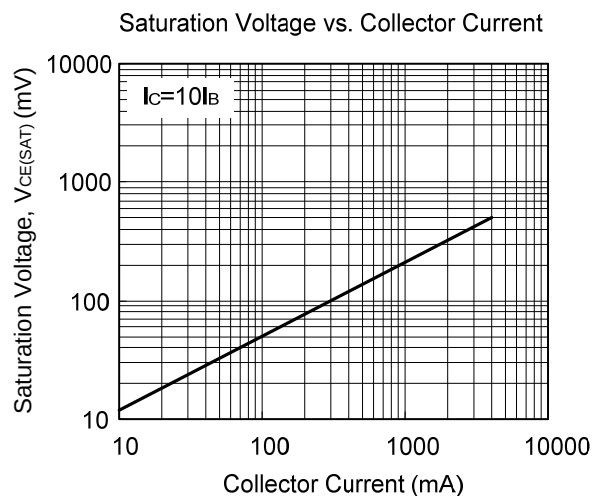
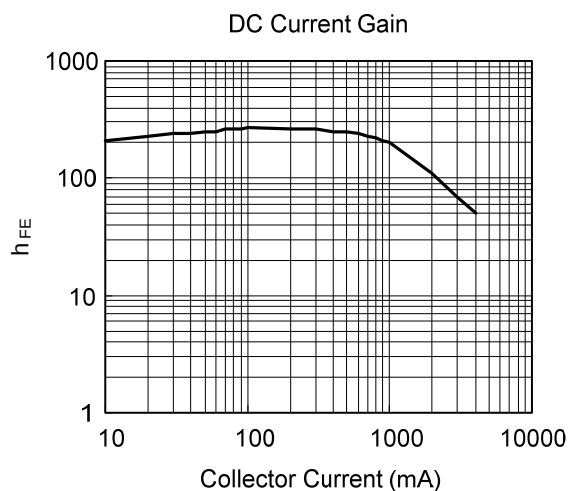
■ **ELECTRICAL CHARACTERISTICS** ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	$I_{\text{C}}=1\text{mA}$	60			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_{\text{C}}=10\text{mA}$	60			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_{\text{E}}=100\mu\text{A}$	5			V
Collector Cut-Off Current	I_{CBO}	$V_{\text{CB}}=20\text{V}, I_{\text{E}}=0$			0.1	mA
Emitter Cut-Off Current	I_{EBO}	$V_{\text{EB}}=4\text{V}, I_{\text{C}}=0$			1.0	mA
DC Current Gain	h_{FE}	$I_{\text{C}}=1\text{A}, V_{\text{CE}}=2\text{V}$	40		320	
		$I_{\text{C}}=0.1\text{A}, V_{\text{CE}}=2\text{V}$	40			
Collector-Emitter Saturation Voltage	$V_{\text{CE(SAT)}}$	$I_{\text{C}}=2\text{A}, I_{\text{B}}=0.2\text{A}$			1.0	V
Base-Emitter On voltage	$V_{\text{BE(ON)}}$	$V_{\text{CE}}=2\text{V}, I_{\text{C}}=1\text{A}$			1.5	V
Gain Band width Product	f_{T}	$V_{\text{CE}}=5\text{V}, I_{\text{C}}=0.5\text{A}$		8		MHz

■ **CLASSIFICATION ON h_{FE}**

RANK	C	D	E	F
RANGE	40-80	60-120	100-200	160-320

TYPICAL CHARACTERISTICS



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