



# 2SB1202

## PNP PLANAR TRANSISTOR

### HIGH CURRENT SWITCHING APPLICATION

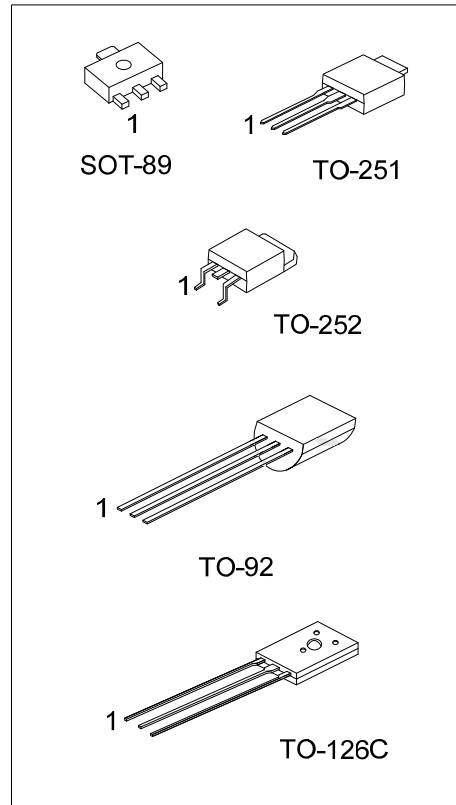
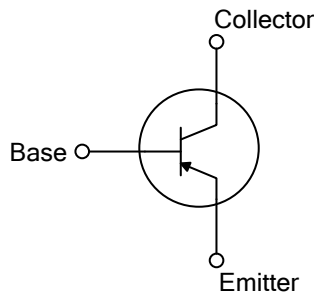
■ DESCRIPTION

The UTC **2SB1202** applies to voltage regulators, relay drivers, lamp drivers, and electrical equipment.

■ FEATURES

- \* Adoption of FBET, MBIT processes
- \* Large current capacity and wide ASO
- \* Low collector-to-emitter saturation voltage
- \* Fast switching speed

■ SYMBOL



■ ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SB1202L-x-AB3-R	2SB1202G-x-AB3-R	SOT-89	B	C	E	Tape Reel
2SB1202L-x-TM3-T	2SB1202G-x-TM3-T	TO-251	B	C	E	Tube
2SB1202L-x-TN3-R	2SB1202G-x-TN3-R	TO-252	B	C	E	Tape Reel
2SB1202L-x-T6C-K	2SB1202G-x-T6C-K	TO-126C	E	C	B	Bulk
2SB1202L-x-T92-B	2SB1202G-x-T92-B	TO-92	E	C	B	Tape Box
2SB1202L-x-T92-K	2SB1202G-x-T92-K	TO-92	E	C	B	Bulk

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

<p>2SB1202G-x-AB3-R</p>	<p>(1) R: Tape Reel, T: Tube, K: Bulk, B: Tape Box                  (2) AB3: SOT-89, TM3: TO-251, TN3: TO-252                  T6C: TO-126C, T92: TO-92                  (3) x: refer to Classification of h<sub>FE1</sub>                  (4) G: Halogen Free and Lead Free, L: Lead Free</p>
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### MARKING

SOT-89	TO-251 / TO-252
<p>             □□□□ → Date Code              2SB1202 → L: Lead Free                                G: Halogen Free              1         </p>	<p>             UTC              2SB1202 → L: Lead Free                                G: Halogen Free              □□□□□□ → Date Code              Lot Code ←              1         </p>
TO-126C	TO-92
<p>             UTC □□□□ → Date Code              2SB1202 → L: Lead Free                                G: Halogen Free              1         </p>	<p>             UTC              2SB1202 → L: Lead Free                                G: Halogen Free              □□□ → Date Code              1         </p>

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

PARAMETER		SYMBOL	RATINGS	UNIT
Collector to Base Voltage		$V_{CBO}$	-60	V
Collector to Emitter Voltage		$V_{CEO}$	-50	V
Emitter to Base Voltage		$V_{EBO}$	-6	V
Collector Power Dissipation ( $T_C=25^\circ\text{C}$ )	SOT-89	$P_D$	3.5	W
	TO-251		28	W
	TO-252		28	W
	TO-126C		20	W
	TO-92		1.5	W
Collector Current	DC	$I_C$	-3	A
	Pulse	$I_{CP}$	-6	A
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.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Case	SOT-89	$\theta_{JC}$	35.7	$^\circ\text{C/W}$
	TO-251		4.53	$^\circ\text{C/W}$
	TO-252		4.53	$^\circ\text{C/W}$
	TO-126C		6.25	$^\circ\text{C/W}$
	TO-92		83.3	$^\circ\text{C/W}$

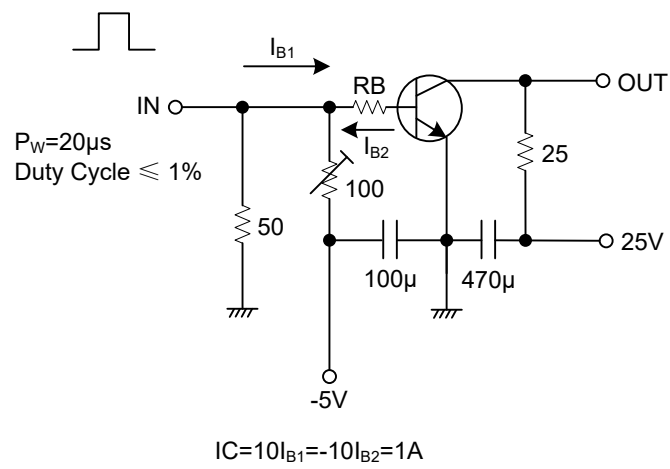
■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector to Base Breakdown Voltage	$BV_{CBO}$	$I_C=-10\mu\text{A}, I_E=0$	-60			V
Collector to Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=-1\text{mA}, R_{BE}=\infty$	-50			V
Emitter to Base Breakdown Voltage	$BV_{EBO}$	$I_E=-10\mu\text{A}, I_C=0$	-6			V
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-40\text{V}, I_E=0$			-1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-4\text{V}, I_C=0$			-1	$\mu\text{A}$
Collector to Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=-2\text{A}, I_B=-100\text{mA}$		-0.35	-0.7	V
Base to Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=-2\text{A}, I_B=-100\text{mA}$		-0.94	-1.2	V
DC Current Gain	$h_{FE1}$	$V_{CE}=-2\text{V}, I_C=-100\text{mA}$	100		560	
	$h_{FE2}$	$V_{CE}=-2\text{V}, I_C=-3\text{A}$	35			
Gain-Bandwidth Product	$f_T$	$V_{CE}=-10\text{V}, I_C=-50\text{mA}$		150		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=-10\text{V}, f=1\text{MHz}$		39		pF
Turn-on Time	$t_{ON}$	See Test Circuit		70		ns
Storage Time	$t_{STG}$	See Test Circuit		450		ns
Fall Time	$t_F$	See Test Circuit		35		ns

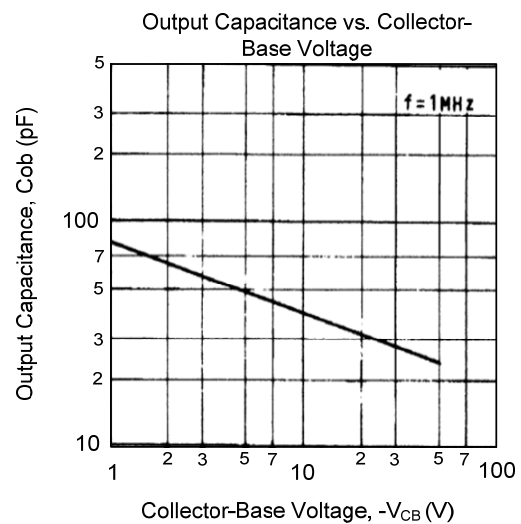
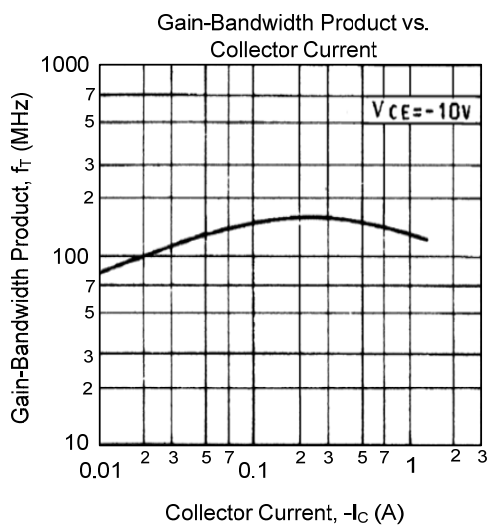
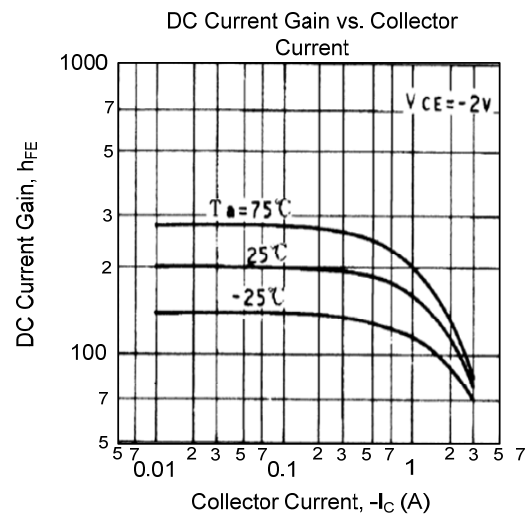
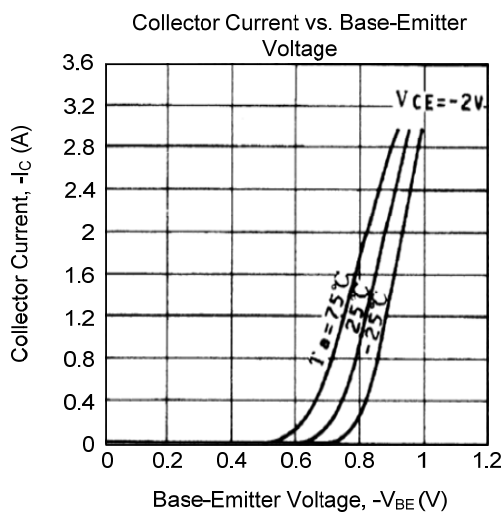
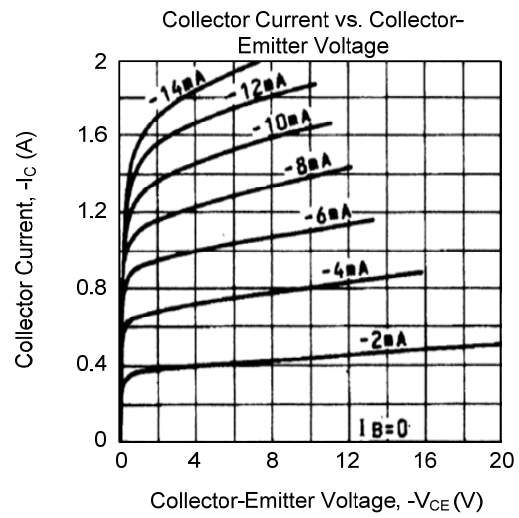
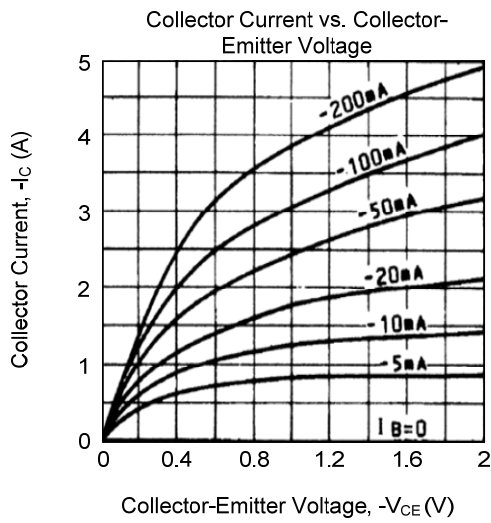
■ CLASSIFICATION OF  $h_{FE1}$

RANK	R	S	T	U
RANGE	100-200	140-280	200-400	280-560

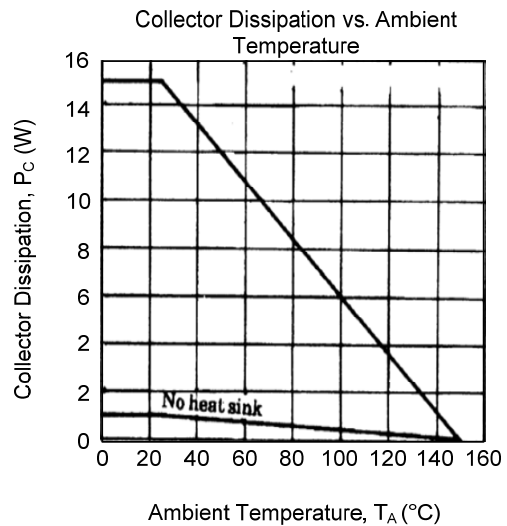
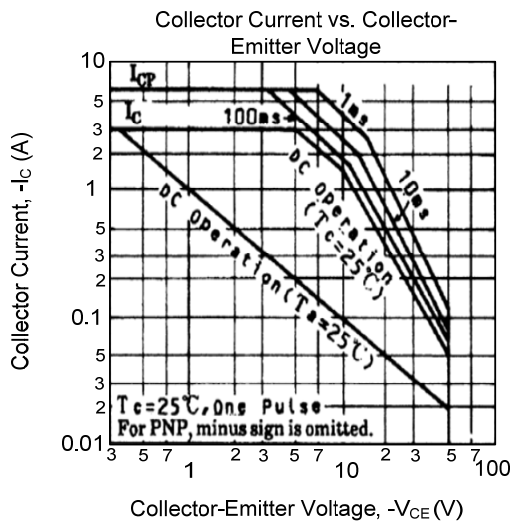
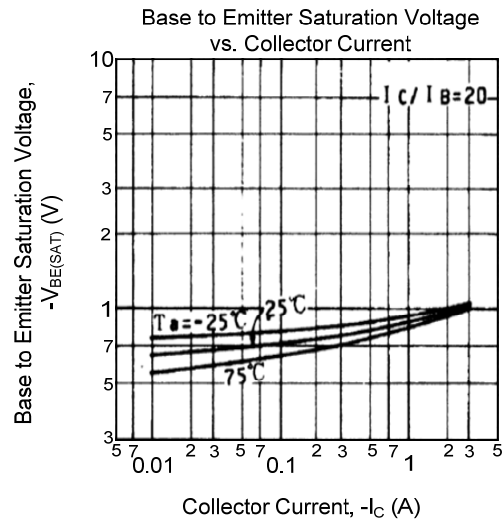
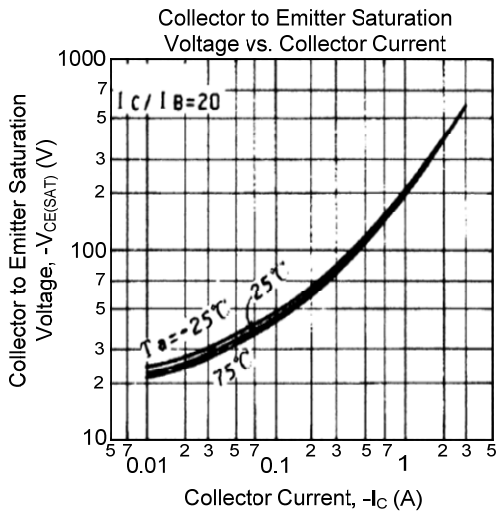
### ■ TEST CIRCUIT



## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS



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