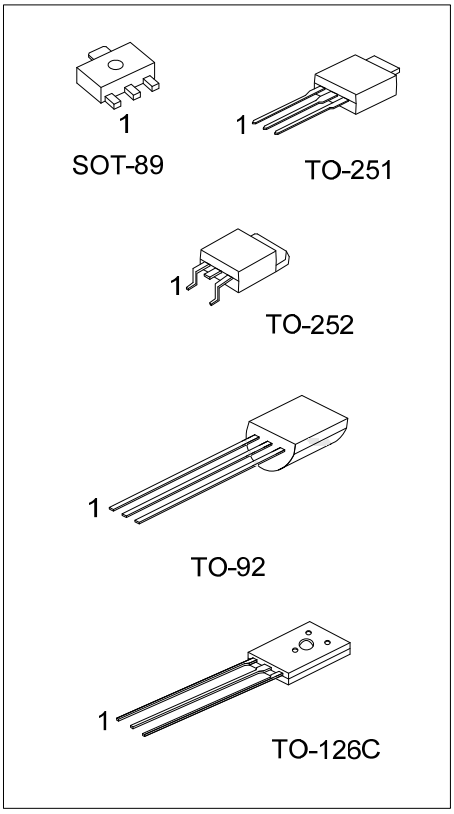
2SB1202

PNP PLANAR TRANSISTOR

HIGH CURRENT SWITCHING APPLICATION



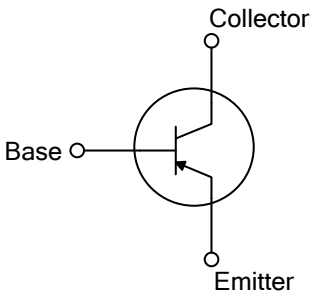
■ DESCRIPTION

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

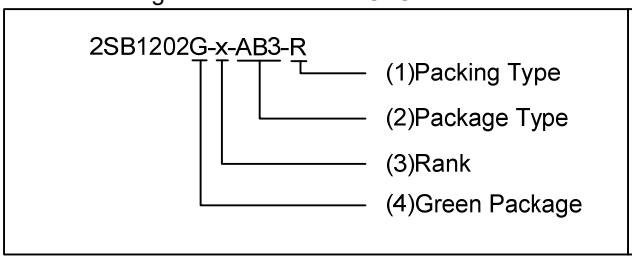
■ SYMBOL



■ ORDERING INFORMATION

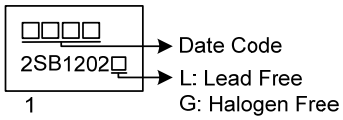
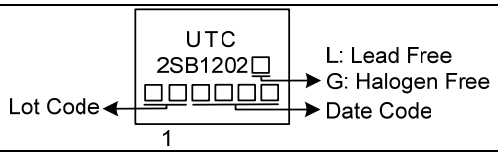
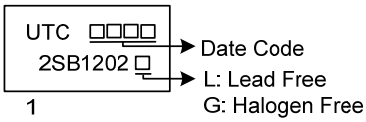
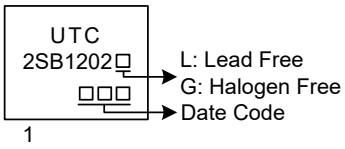
Order Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SB1202L-x-AB3-R	2SB1202G-x-AB3-R	SOT-89	B	C	E	Tape Reel
2SB1202L-x-TM3-T	2SB1202G-x-TM3-T	TO-251	B	C	E	Tube
2SB1202L-x-TN3-R	2SB1202G-x-TN3-R	TO-252	B	C	E	Tape Reel
2SB1202L-x-T6C-K	2SB1202G-x-T6C-K	TO-126C	E	C	B	Bulk
2SB1202L-x-T92-B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



(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_{FE1}
(4) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

SOT-89	TO-251 / TO-252
	
TO-126C	**TO-92**
	

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°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°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	°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.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Case	SOT-89	θ_{JC}	35.7	°C/W
	TO-251		4.53	°C/W
	TO-252		4.53	°C/W
	TO-126C		6.25	°C/W
	TO-92		83.3	°C/W

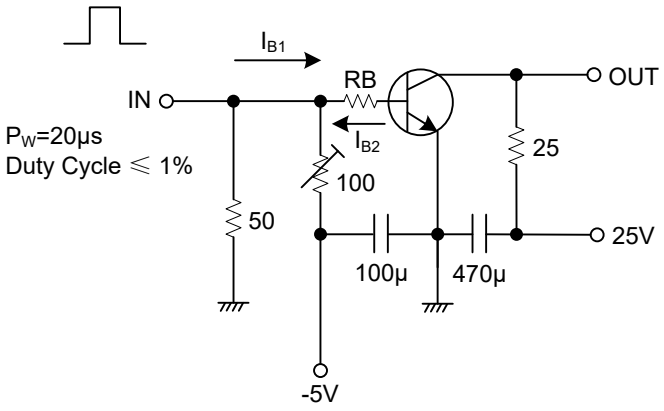
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector to Base Breakdown Voltage	BV_{CBO}	I_C=-10μA, I_E=0	-60			V
Collector to Emitter Breakdown Voltage	BV_{CEO}	I_C=-1mA, R_{BE}=∞	-50			V
Emitter to Base Breakdown Voltage	BV_{EBO}	I_E=-10μA, I_C=0	-6			V
Collector Cutoff Current	I_{CBO}	V_{CB}=-40V, I_E=0			-1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=-4V, I_C=0			-1	μA
Collector to Emitter Saturation Voltage	$V_{CE(SAT)}$	I_C=-2A, I_B=-100mA		-0.35	-0.7	V
Base to Emitter Saturation Voltage	$V_{BE(SAT)}$	I_C=-2A, I_B=-100mA		-0.94	-1.2	V
DC Current Gain	h_{FE1}	V_{CE}=-2V, I_C=-100mA	100		560	
	h_{FE2}	V_{CE}=-2V, I_C=-3A	35			
Gain-Bandwidth Product	f_T	V_{CE}=-10V, I_C=-50mA		150		MHz
Output Capacitance	Cob	V_{CB}=-10V, f=1MHz		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

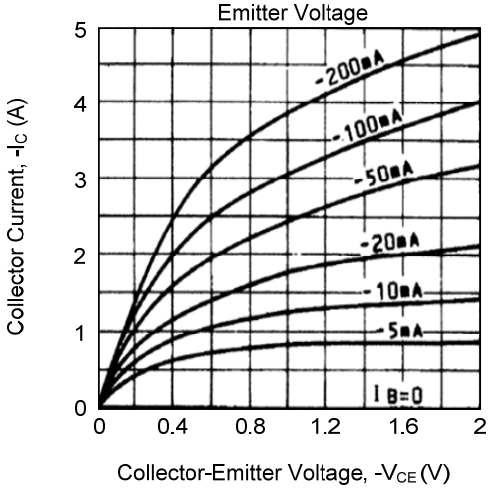
■ TEST CIRCUIT



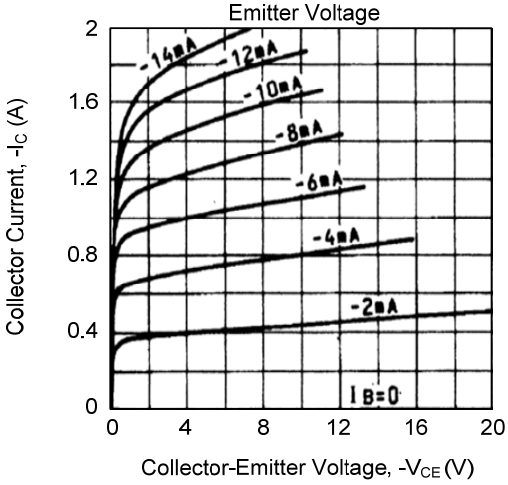
$IC=10I_{B1}=-10I_{B2}=1A$

■ TYPICAL CHARACTERISTICS

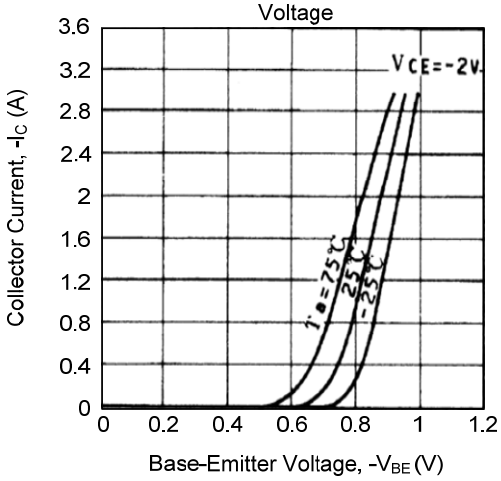
Collector Current vs. Collector-Emitter Voltage



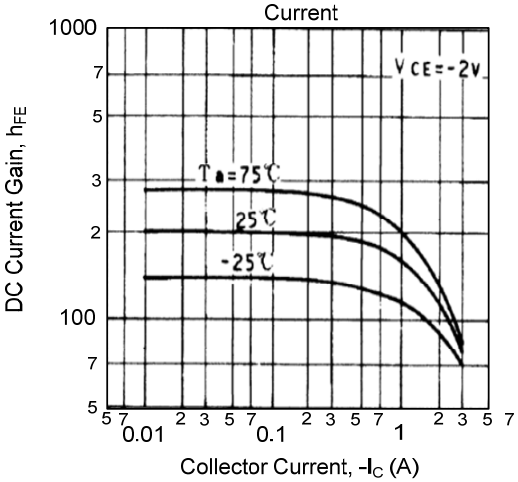
Collector Current vs. Collector-Emitter Voltage



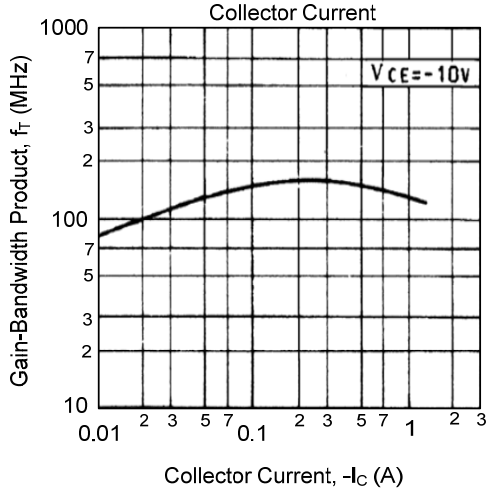
Collector Current vs. Base-Emitter Voltage



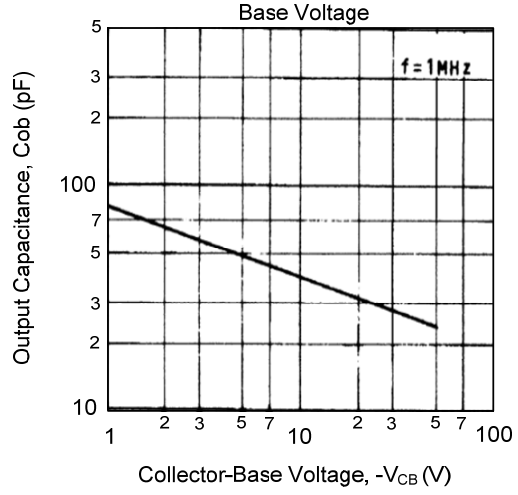
DC Current Gain vs. Collector Current



Gain-Bandwidth Product vs. Collector Current

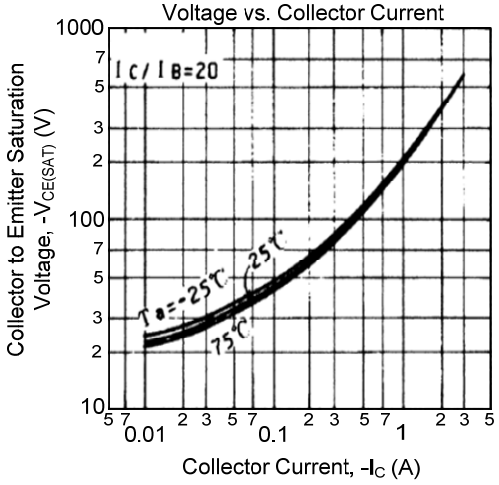


Output Capacitance vs. Collector-Base Voltage

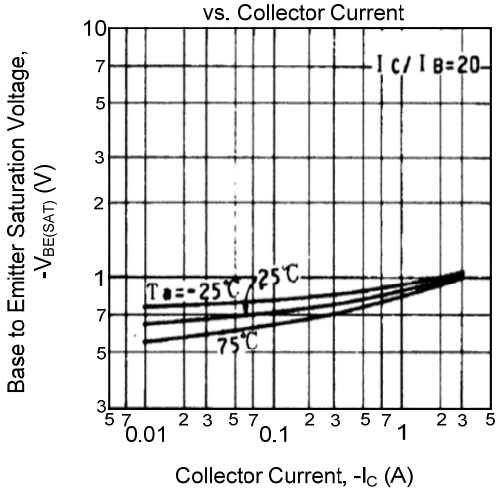


■ TYPICAL CHARACTERISTICS

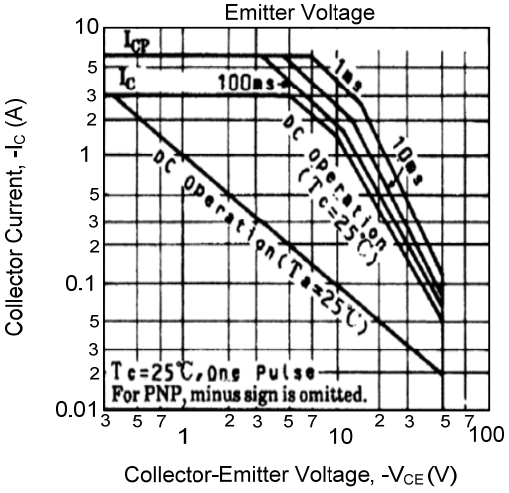
Collector to Emitter Saturation Voltage vs. Collector Current



Base to Emitter Saturation Voltage vs. Collector Current



Collector Current vs. Collector-Emitter Voltage



Collector Dissipation vs. Ambient Temperature