



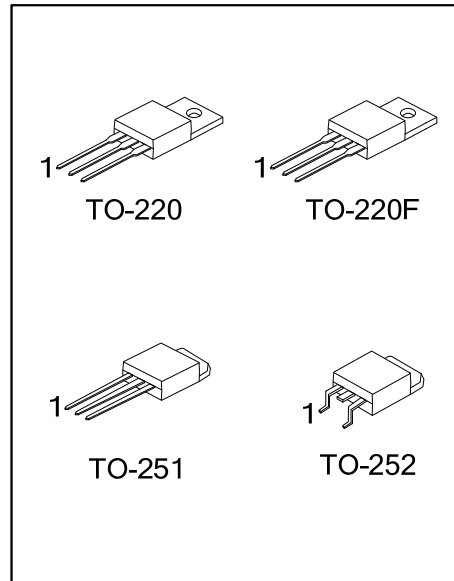
# 2SA1012

## PNP SILICON TRANSISTOR

### HIGH CURRENT SWITCHING APPLICATION

■ FEATURES

- \*Low Collector Saturation Voltage  
 $V_{CE(SAT)} = -0.4V(\text{max.})$  At  $I_C = -3A$
- \*High Speed Switching Time:  $t_S = 1.0\mu s$  (Typ.)
- \*Complementary To 2SC2562



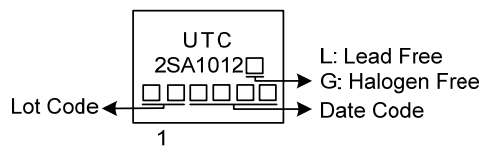
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SA1012L-x-TA3-T	2SA1012G-x-TA3-T	TO-220	B	C	E	Tube
2SA1012L-x-TF3-T	2SA1012G-x-TF3-T	TO-220F	B	C	E	Tube
2SA1012L-x-TM3-T	2SA1012G-x-TM3-T	TO-251	B	C	E	Tube
2SA1012L-x-TN3-R	2SA1012G-x-TN3-R	TO-252	B	C	E	Tape Reel

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

<p>2SA1012G-x-TA3-T</p> <p>(1) Packing Type          (2) Package Type          (3) Rank          (4) Green Package</p>	<p>(1) T: Tube, R: Tape Reel          (2) TA3: TO-220, TF3: TO-220F, TM3: TO-251, TN3: TO-252          (3) x: reference to Classification of <math>h_{FE1}</math>          (4) G: Halogen Free and Lead Free, L: Lead Free</p>
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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		$V_{CEO}$	-50	V
Collector-Emitter Voltage		$V_{EBO}$	-5	V
Base Current	DC	$I_B$	-1	A
	Pulse	$I_{BP}$	-2	A
Peak Collector Current	DC	$I_C$	-5	A
	Pulse	$I_{CP}$	-8	A
Power Dissipation ( $T_C=25^\circ\text{C}$ )	TO-220	$P_D$	25	W
	TO-220F		23	W
	TO-251		15	W
	TO-252			
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.

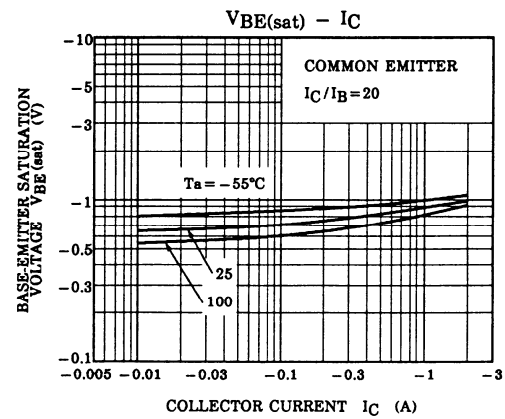
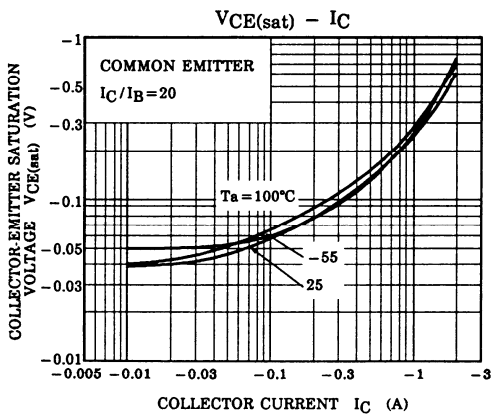
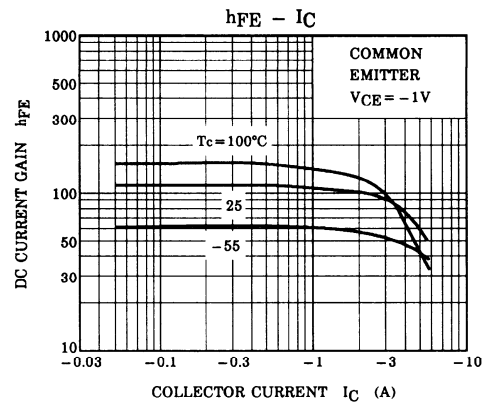
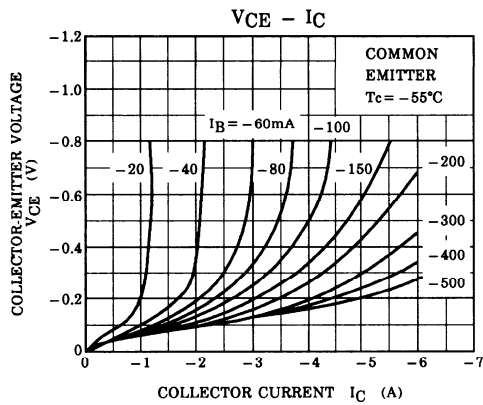
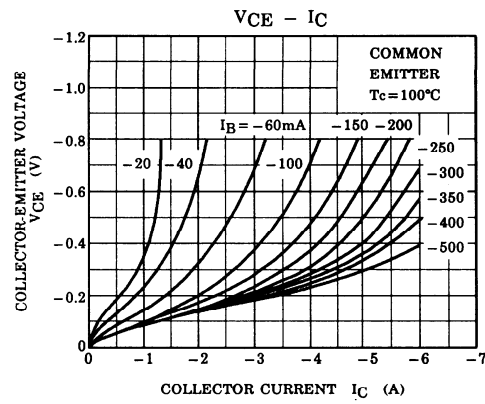
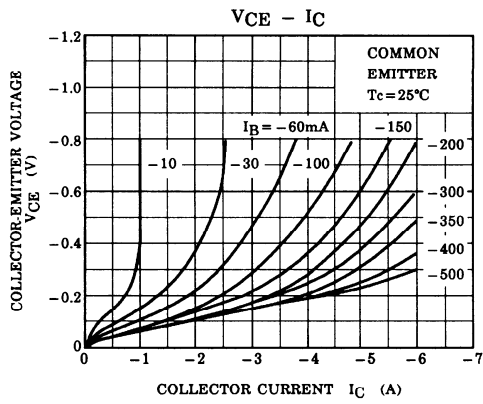
■ ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage		$BV_{CBO}$	$I_C=-100\mu\text{A}, I_E=0$	-60			V
Collector-Emitter Breakdown Voltage		$BV_{CEO}$	$I_C=-10\text{mA}, I_B=0$	-50			V
Emitter-Base Breakdown Voltage		$BV_{EBO}$	$I_E=-100\mu\text{A}, I_C=0$	-5			V
Collector Cut-off Current		$I_{CBO}$	$V_{CB}=-50\text{V}, I_E=0$			-1.0	$\mu\text{A}$
Emitter Cut-off Current		$I_{EBO}$	$V_{EB}=-5\text{V}, I_C=0$			-1.0	$\mu\text{A}$
DC Current Gain		$h_{FE1}$	$V_{CE}=-1\text{V}, I_C=-1\text{A}$	70		360	
		$h_{FE2}$	$V_{CE}=-1\text{V}, I_C=-3\text{A}$	30			
Collector-Emitter Saturation Voltage		$V_{CE(SAT)}$	$I_C=-3\text{A}, I_B=-0.15\text{A}$		-0.2	-0.4	V
Base-Emitter Saturation Voltage		$V_{BE(SAT)}$	$I_C=-3\text{A}, I_B=-0.15\text{A}$		-0.9	-1.2	V
Transition frequency		$f_T$	$V_{CE}=-4\text{V}, I_C=-1\text{A}$		60		MHz
Collector output capacitance		$C_{ob}$	$V_{CB}=-10\text{V}, I_E=0, f=1\text{MHz}$		170		pF
Switching time	Turn-on time	$t_{ON}$			0.1		$\mu\text{s}$
	Storage time	$t_S$			1.0		$\mu\text{s}$
	Fall time	$t_F$				0.1	

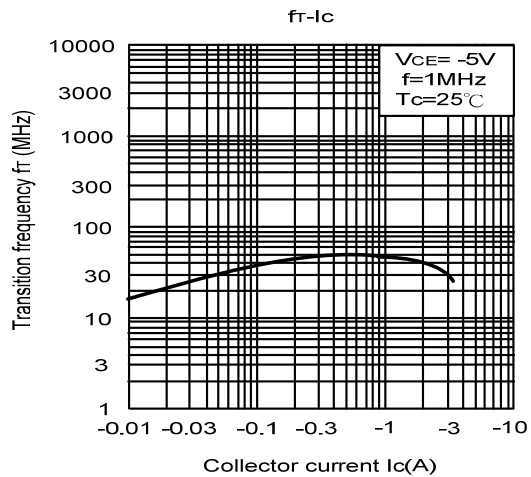
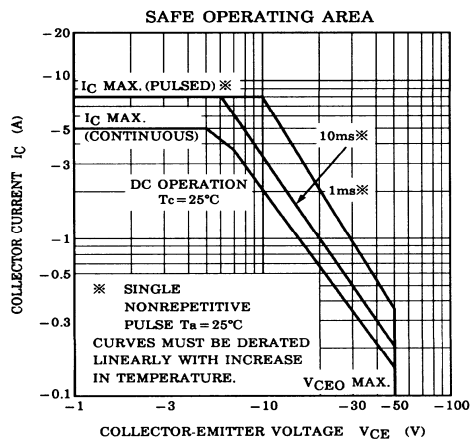
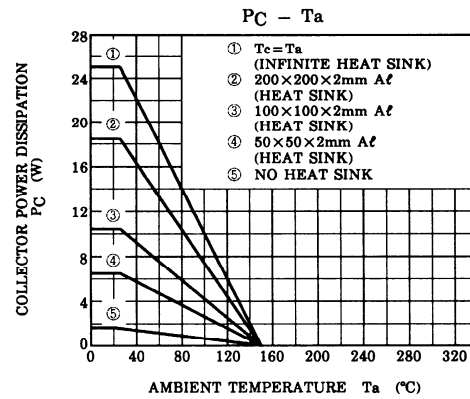
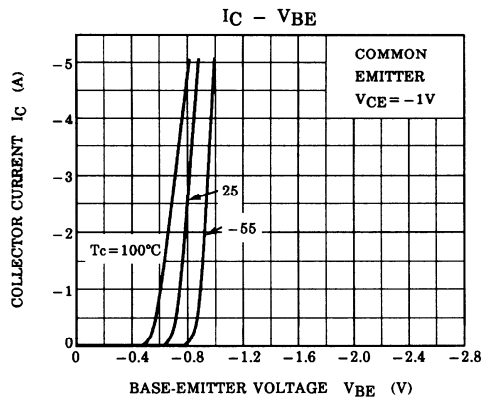
■ CLASSIFICATION of  $h_{FE1}$

RANK	O	Y	R	R1
RANGE	70 ~ 140	120 ~ 240	180 ~ 360	>255

## TYPICAL CHARACTERISTICS



## TYPICAL CHARACTERISTICS (Cont.)



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