



# 2SA2016

## PNP PLANAR TRANSISTOR

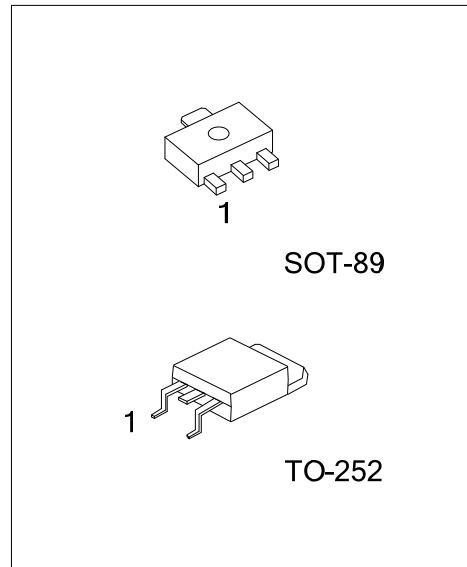
### PNP EPITAXIAL PLANAR TRANSISTOR

■ APPLICATIONS

\* Relay drivers, lamp drivers, motor drivers, strobes.

■ FEATURES

- \*High current capacitance.
- \*Low collector-to-emitter saturation voltage.
- \*High-speed switching
- \*High allowable power dissipation.



■ ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
-	2SA2016G-AB3-R	SOT-89	B	C	E	Tape Reel
2SA2016L-TN3-R	2SA2016G-TN3-R	TO-252	B	C	E	Tape Reel

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

<p>2SA2016G-AB3-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel, T: Tube (2) AB3: SOT-89, TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING

SOT-89	TO-252

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

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	$V_{CBO}$	-50	V
Collector-Emitter Voltage	$V_{CEO}$	-50	V
Emitter-Base Voltage	$V_{EBO}$	-6	V
Collector Dissipation Mounted on a ceramic board (250mm <sup>2</sup> *0.8mm)	SOT-89	1.3	W
	TO-252	1.9	W
Collector Dissipation ( $T_C=25^\circ\text{C}$ )	SOT-89	3.5	W
	TO-252	15	W
Collector Current	$I_C$	-7	A
Collector Current	$I_{CP}$	-10	A
Base Current	$I_B$	-1.2	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.

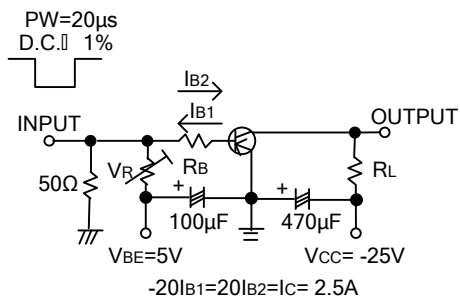
■ THERMAL RESISTANCES CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-89	96.2	$^\circ\text{C}/\text{W}$
	TO-252	65.8	$^\circ\text{C}/\text{W}$
Junction to Case	SOT-89	35.7	$^\circ\text{C}/\text{W}$
	TO-252	8.3	$^\circ\text{C}/\text{W}$

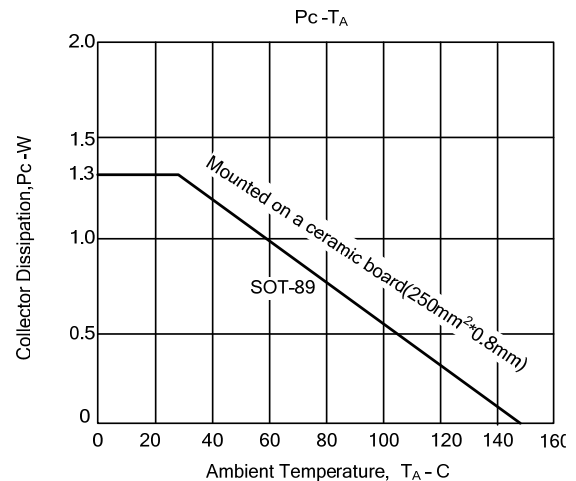
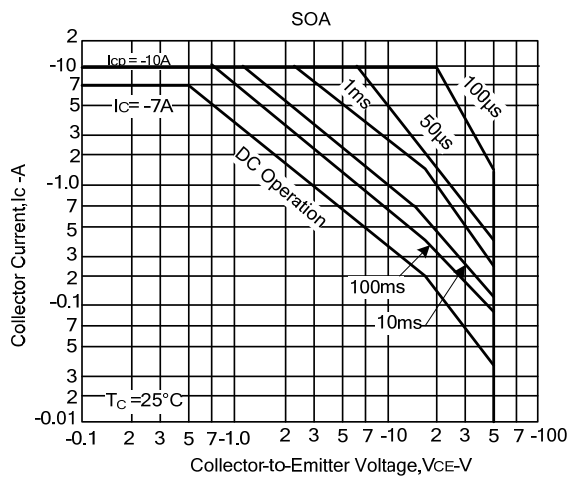
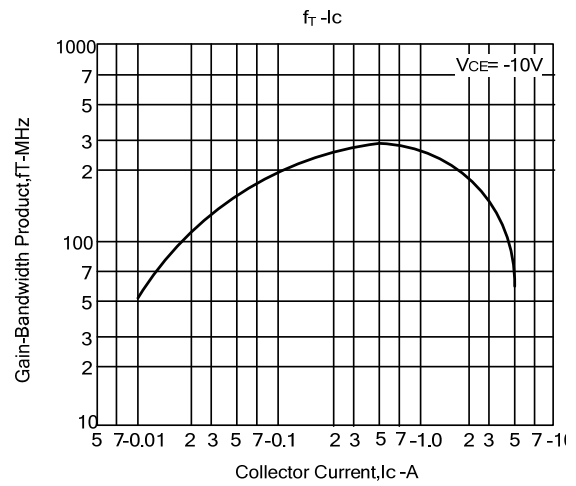
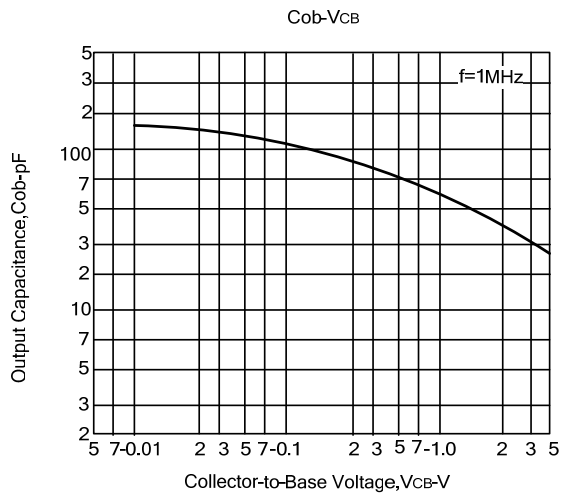
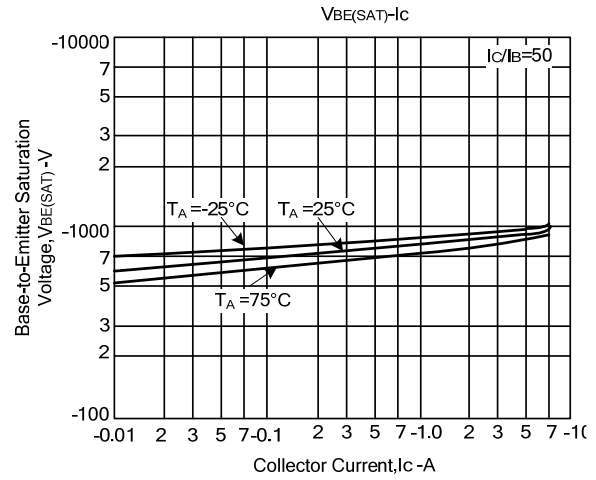
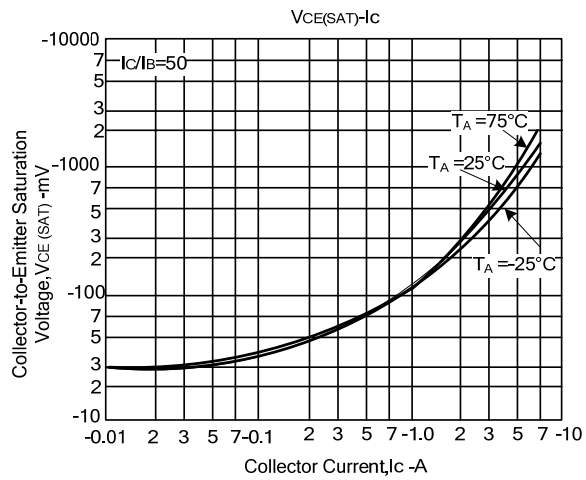
■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-to-Base Breakdown Voltage	$BV_{CBO}$	$I_C = -10\mu\text{A}$ , $I_E = 0$	-50			V
Collector-to- Emitter Breakdown Voltage	$BV_{CEO}$	$I_C = -1\text{mA}$ , $R_{BE} = \infty$	-50			V
Emitter-to-Base Breakdown Voltage	$BV_{EBO}$	$I_C = 0$ , $I_E = -10\mu\text{A}$	-6			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB} = -40\text{V}$ , $I_E = 0$			-0.1	$\mu\text{A}$
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB} = -4\text{V}$ , $I_C = 0$			-0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = -2\text{V}$ , $I_C = -500\text{mA}$	200		560	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = -3.5\text{A}$ , $I_B = -175\text{mA}$		-0.23	-0.39	V
		$I_C = -2\text{A}$ , $I_B = -40\text{mA}$		-0.24	-0.40	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = -2\text{A}$ , $I_B = -40\text{mA}$		-0.83	-1.2	V
Gain Bandwidth Product	$f_T$	$V_{CE} = -10\text{V}$ , $I_C = -500\text{mA}$		290		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = -10\text{V}$ , $f = 1\text{MHz}$		50		pF
Turn-on Time	$t_{ON}$	See specified Test Circuit		40		ns
Storage Time	$t_{STG}$	See specified Test Circuit		225		ns
Fall Time	$t_F$	See specified Test Circuit		25		ns

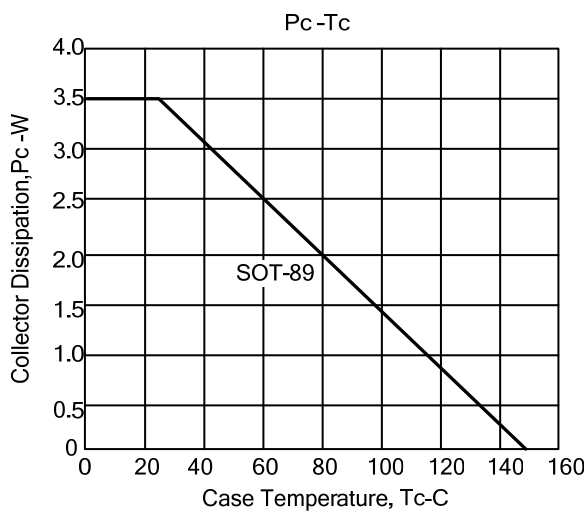
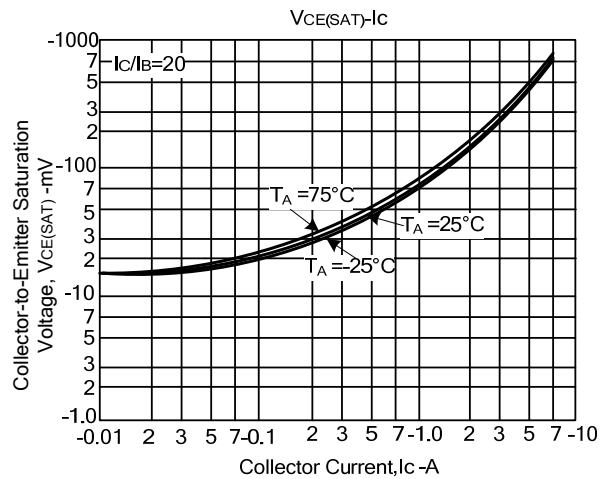
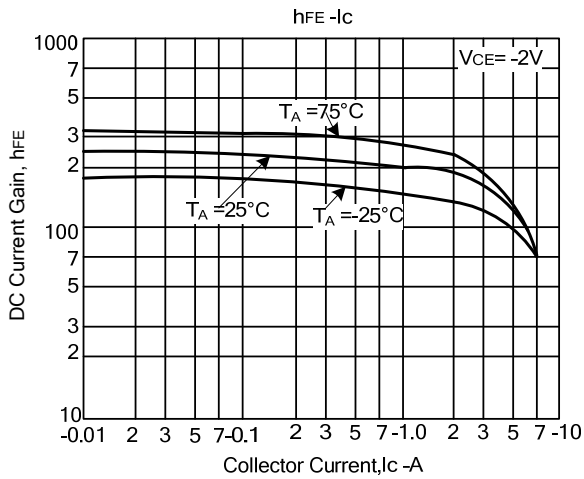
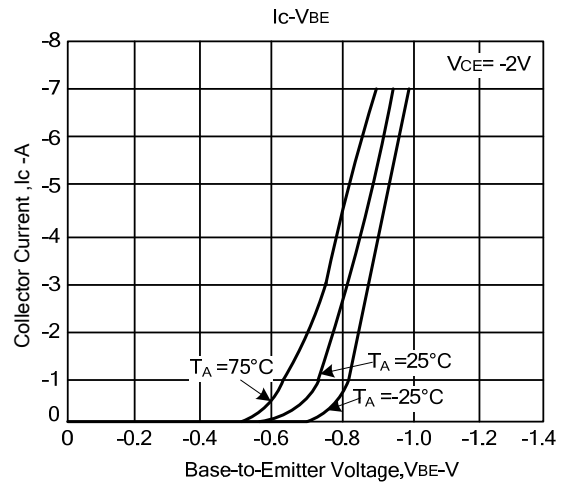
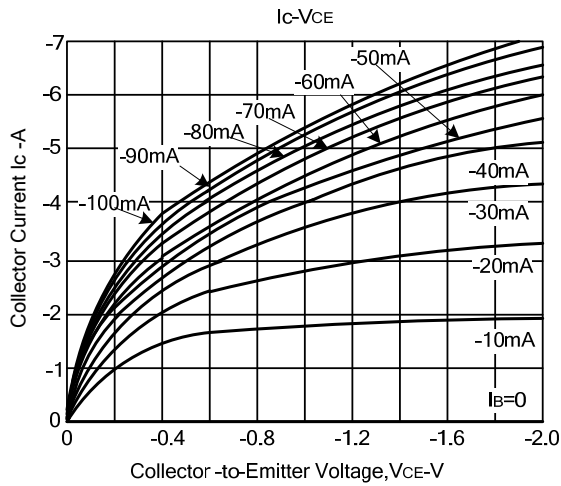
■ SWITCHING TIME TEST CIRCUIT



## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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