



2SA1606/2SC4159

High-Voltage Switching, AF 100W Driver Applications

Applications

- High-voltage switching, AF power amplifier, 100W output predrivers.

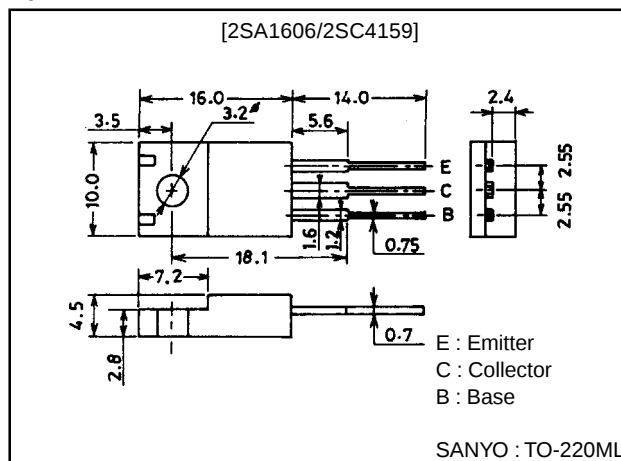
Features

- Micaless package facilitating mounting.

Package Dimensions

unit:mm

2041



() : 2SA1606

Specifications

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		(-)180	V
Collector-to-Emitter Voltage	V_{CE0}		(-)160	V
Emitter-to-Base Voltage	V_{EB0}		(-)6	V
Collector Current	I_C		(-)1.5	A
Collector Current (Pulse)	I_{CP}		(-)3	A
Collector Dissipation	P_C	$T_c=25^\circ\text{C}$	15	W
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)120\text{V}, I_E=0$			(-)10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4\text{V}, I_C=0$			(-)10	μA
DC Current Gain	h_{FE}	$V_{CE}=(-)5\text{V}, I_C=(-)300\text{mA}$	60*		200*	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10\text{V}, I_C=(-)50\text{mA}$		100		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10\text{V}, f=1\text{MHz}$		(30)23		pF
Base-to-Emitter Voltage	V_{BE}	$V_{CE}=(-)5\text{V}, I_C=(-)10\text{mA}$			(-)1.5	V

* : The 2SA1606/2SC4159 are classified by 300mA h_{FE} as follows :

60	D	120	100	E	200
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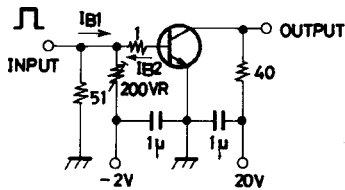
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)500mA, I_B=(-)50mA$		(-0.5)		V
				0.3		V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)1mA, I_E=0$	(-)180			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)160			V
Emitter-to-Base Breakdown Votage	$V_{(BR)EBO}$	$I_E=(-)1mA, I_C=0$	(-)6			V
Turn-ON Time	t_{on}	See specified test circuit.		(0.29)		μs
		See specified test circuit.		0.15		μs
Fall Time	t_f	See specified test circuit.		(0.19)		μs
		See specified test circuit.		0.48		μs
Storage Time	t_{stg}	See specified test circuit.		(0.48)		μs
		See specified test circuit.		0.81		μs

Switching Time Test Circuit

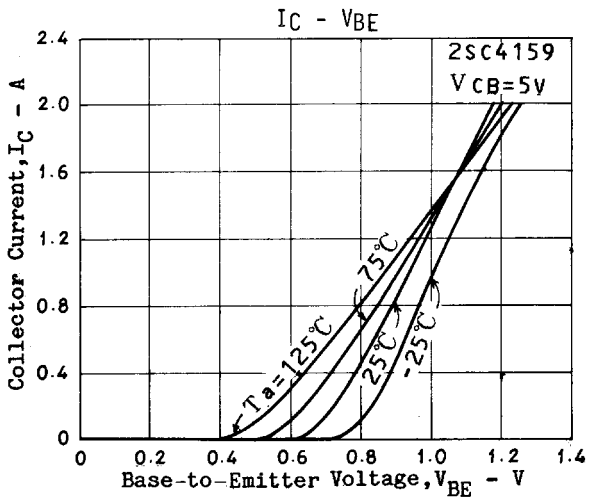
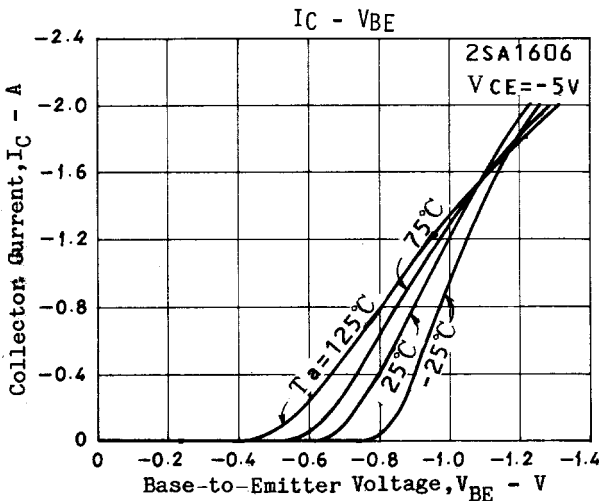
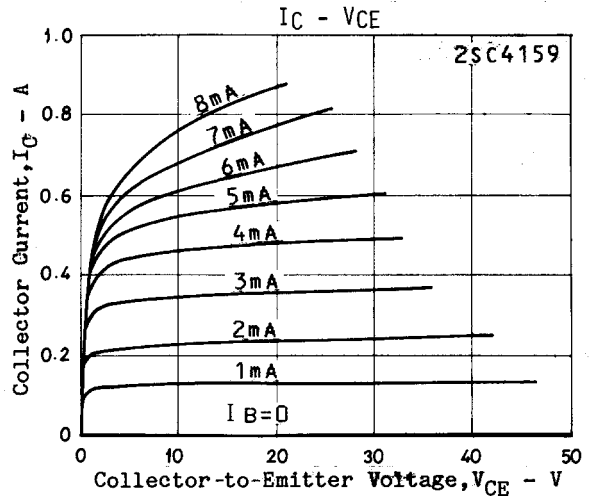
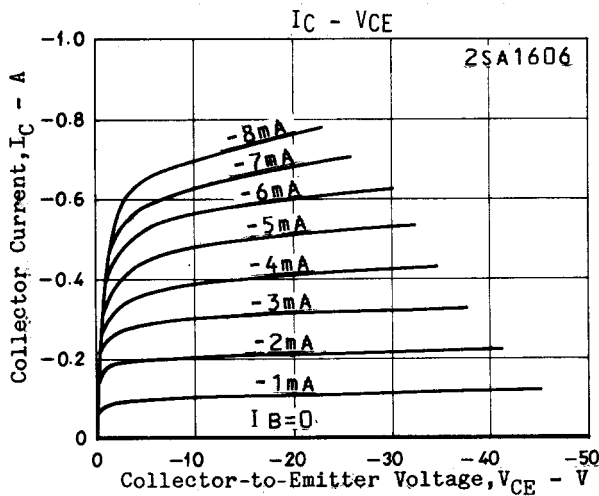


$10I_{B1} = -10I_{B2} = I_C = 0.5A$

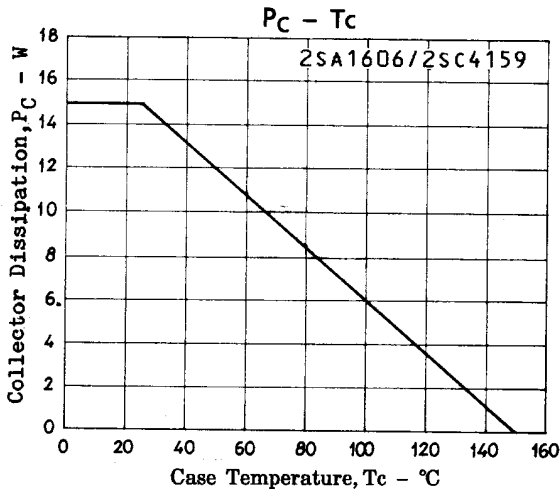
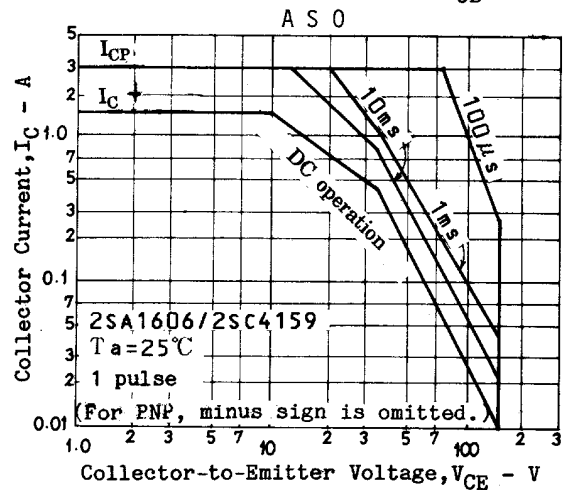
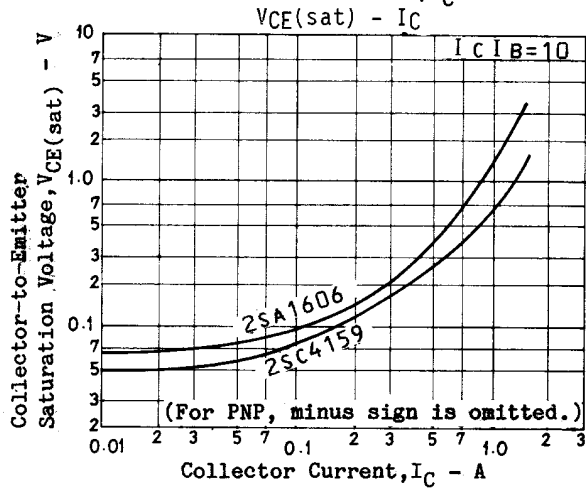
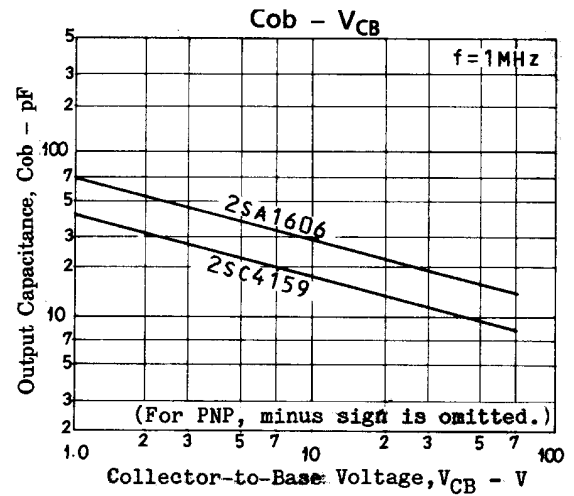
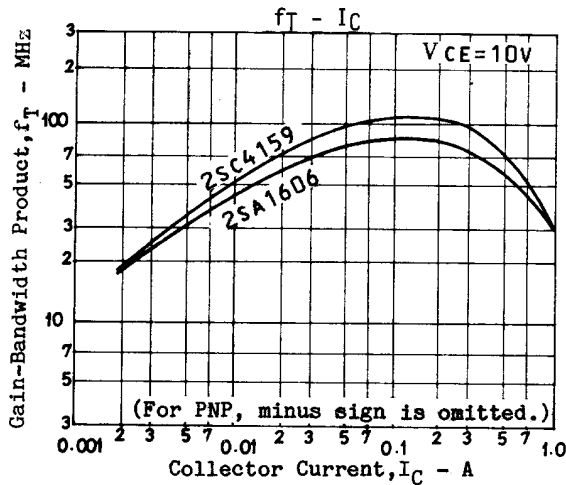
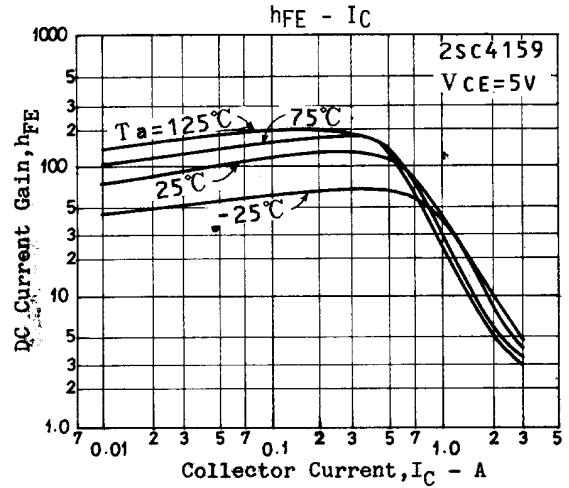
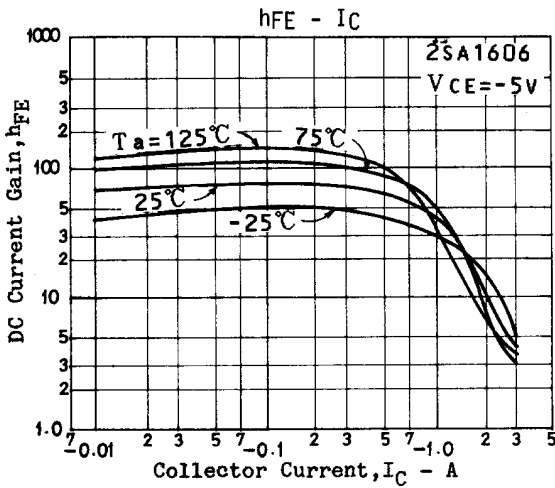
$PW = 20\mu s$

For PNP, the polarity is reversed.

Unit (resistance : Ω , capacitance : F)



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