

**160V/140mA Switching Applications****Applications**

- Predrivers for 100W power amplifiers.

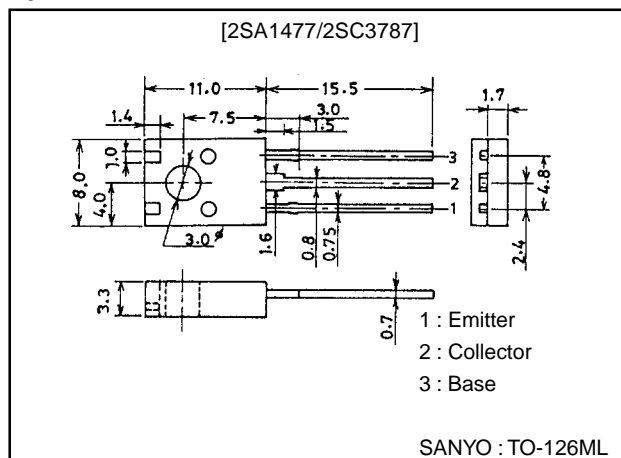
**Features**

- Adoption of FBET process.
- Excellent linearity of  $h_{FE}$ .
- Small  $C_{ob}$ .
- Plastic-covered heat sink facilitating high-density mounting (TO-126ML package).

**Package Dimensions**

unit:mm

2042B



() : 2SA1477

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		(-)180	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-)160	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)5	V
Collector Current	$I_C$		(-)140	mA
Peak Collector Current	$I_{CP}$		(-)200	mA
Collector Dissipation	$P_C$		1.3	W
		$T_c=25^\circ\text{C}$	10	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	$I_{CBO}$	$V_{CB} = (-)120\text{V}, I_E = 0$			(-)100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4\text{V}, I_C = 0$			(-)100	nA
DC Current Gain	$h_{FE}$	$V_{CE} = (-)5\text{V}, I_C = (-)10\text{mA}$	100		400	
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)10\text{V}, I_C = (-)10\text{mA}$		150		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = (-)10\text{V}, f = 1\text{MHz}$		(4.0)		pF
				3.0		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)50\text{mA}, I_B = (-)5\text{mA}$		(-140)	(-400)	mV
				70	300	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)50\text{mA}, I_B = (-)5\text{mA}$			1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu\text{A}, I_E = 0$			(-)180	V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1\text{mA}, R_{BE} = \infty$			(-)160	V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu\text{A}, I_C = 0$			(-)5	V
Rise Time	$t_{on}$	See specified Test Circuit		0.1		$\mu\text{s}$
Storage Time	$t_{stg}$	See specified Test Circuit		0.5		$\mu\text{s}$
Fall Time	$t_f$	See specified Test Circuit		0.1		$\mu\text{s}$

\*: The 2SA1477/2SC3787 are classified by 10mA  $h_{FE}$  as follows :

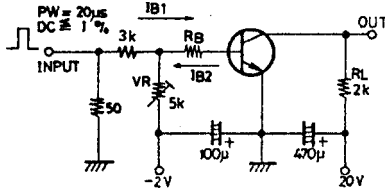
100	R	200	140	S	280	200	T	400
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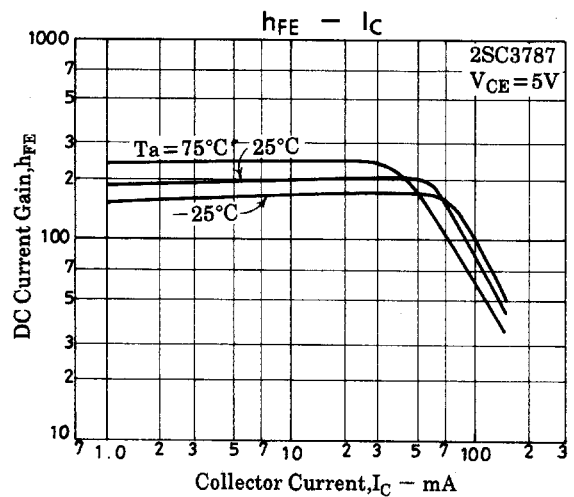
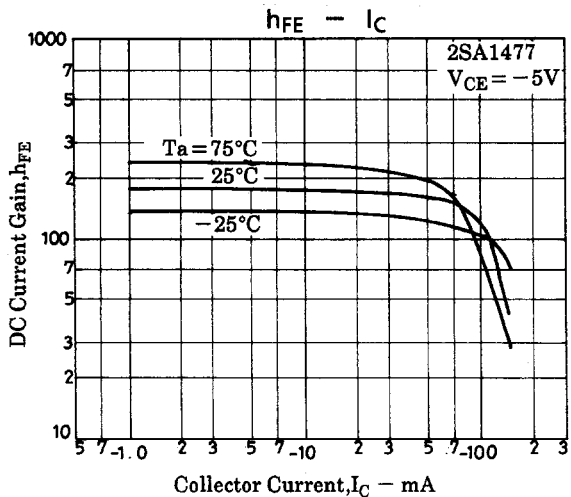
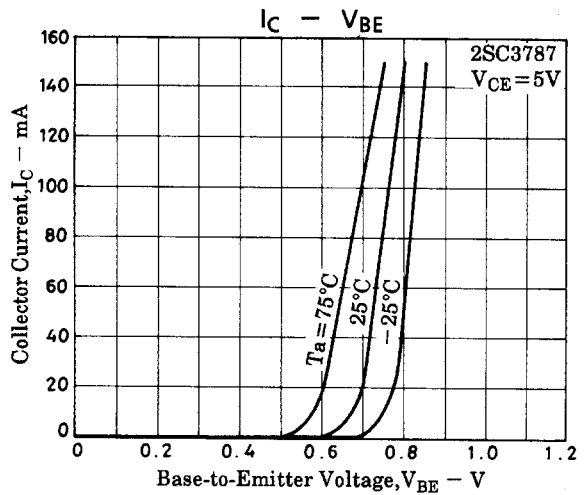
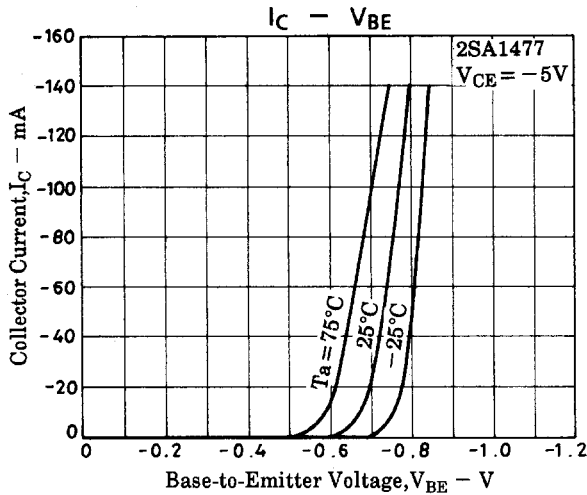
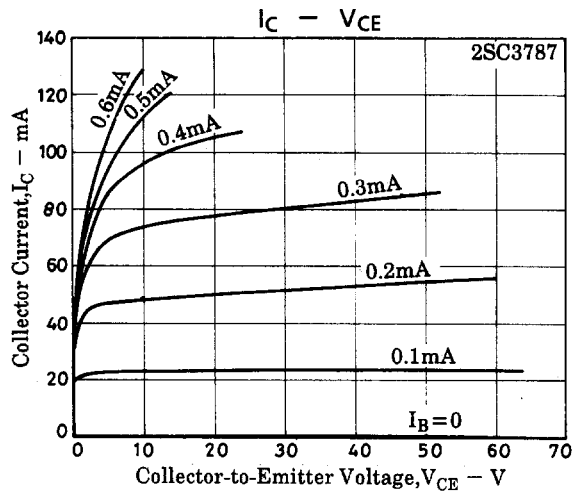
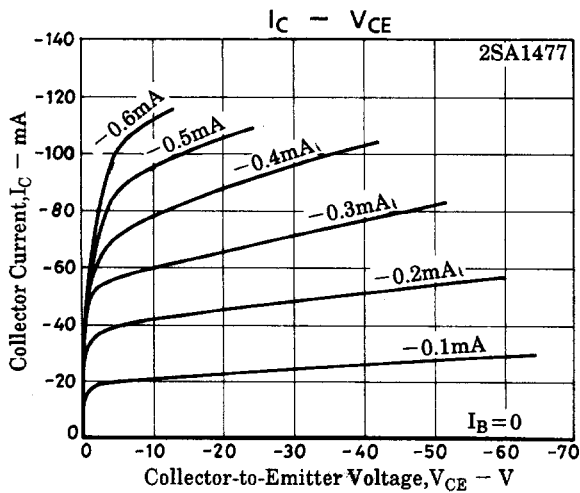
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71598HA (KT)/10996TS (KOTO) 8-8491/5197TA, TS No.2089-1/4

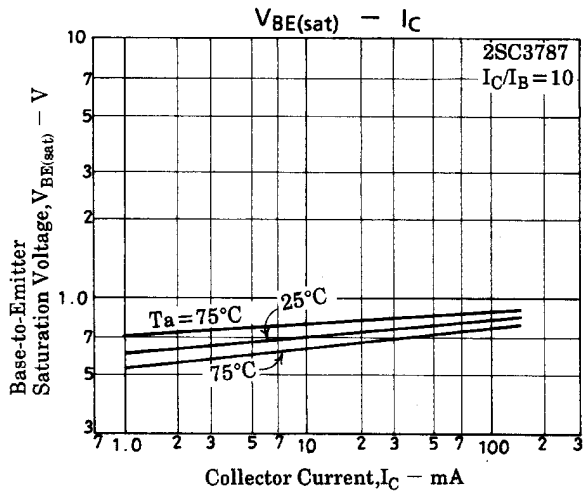
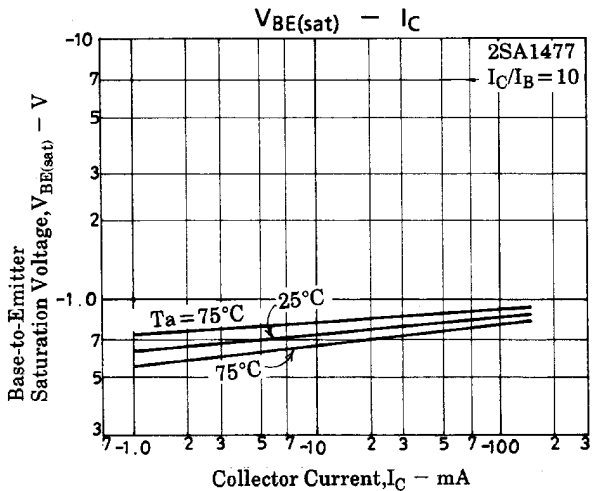
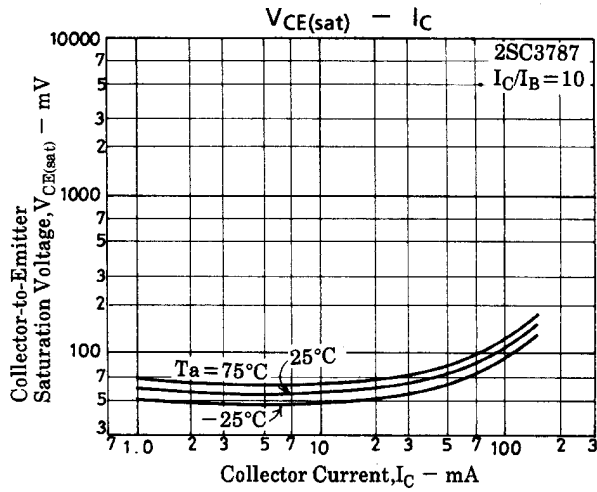
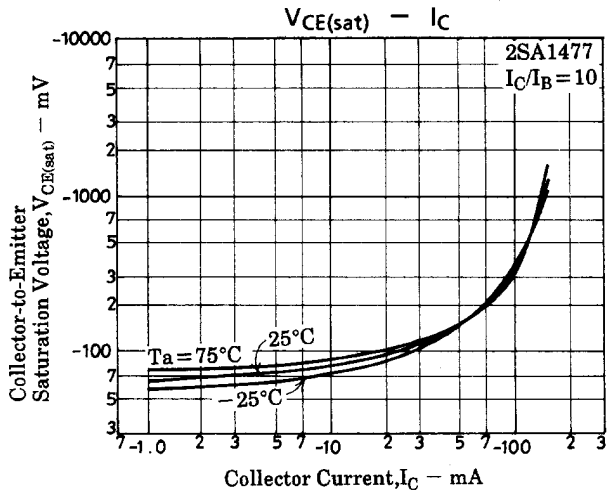
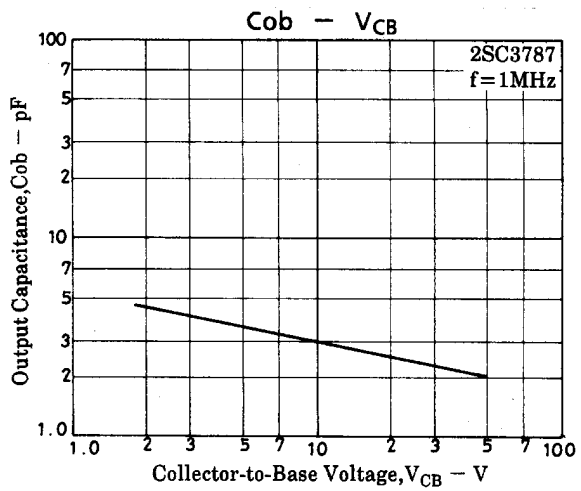
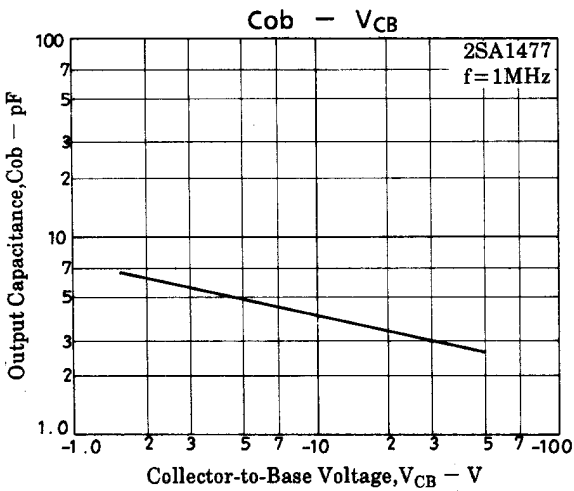
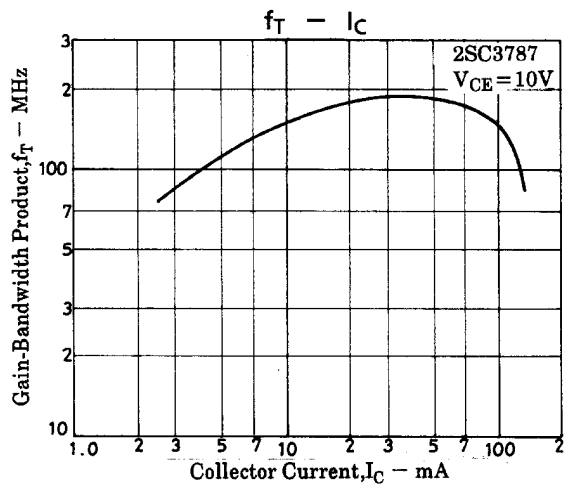
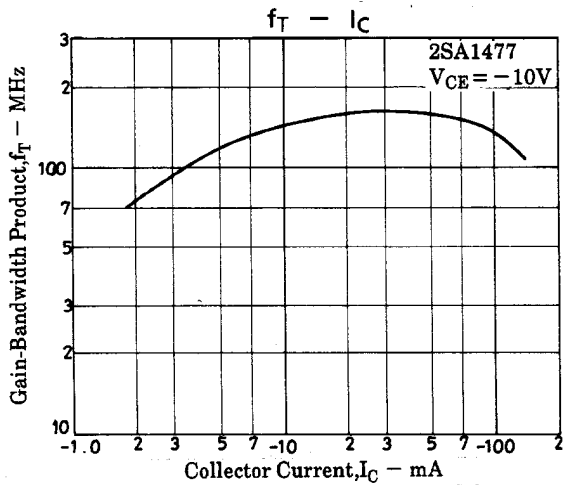
Switching Time Test Circuit



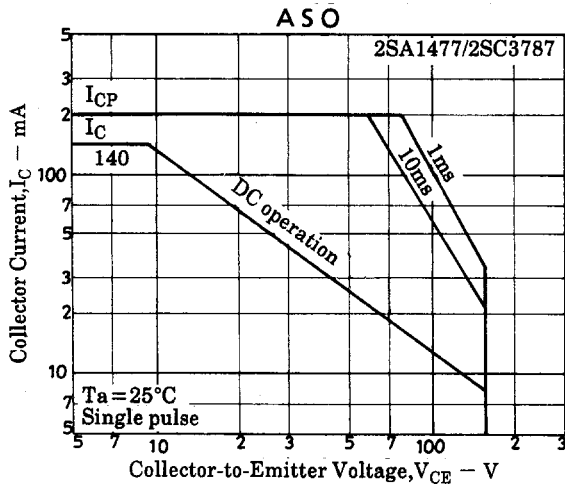
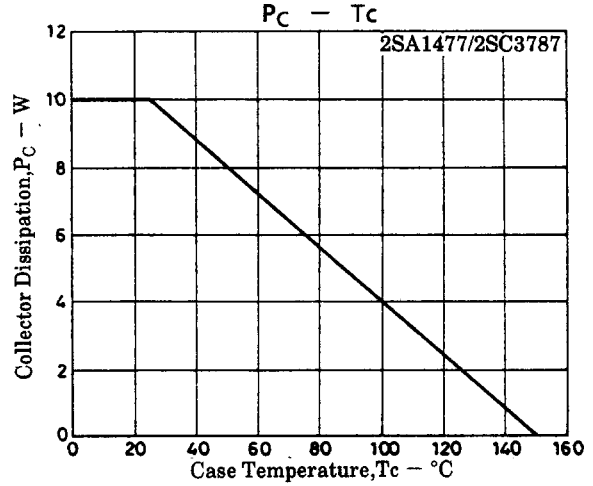
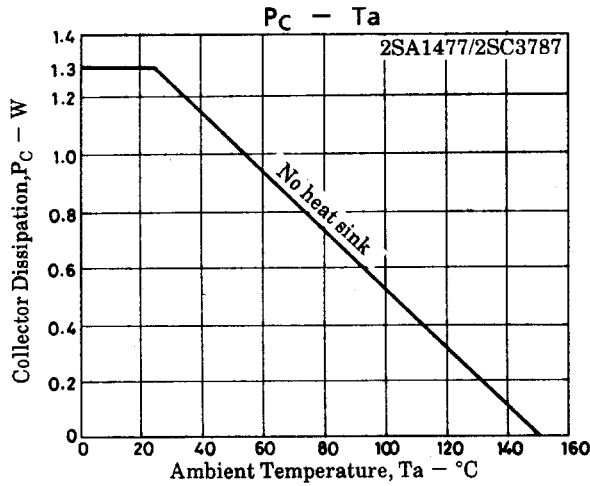
$I_C = 10I_{B1} = 10I_{B2} = 10\text{mA}$   
 (For PNP, the polarity is reversed)  
 Unit (resistance :  $\Omega$ , capacitance : F)



# 2SA1477/2SC3787



## 2SA1477/2SC3787



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