



## 2SA1709/2SC4489

### High-Voltage Switching Applications

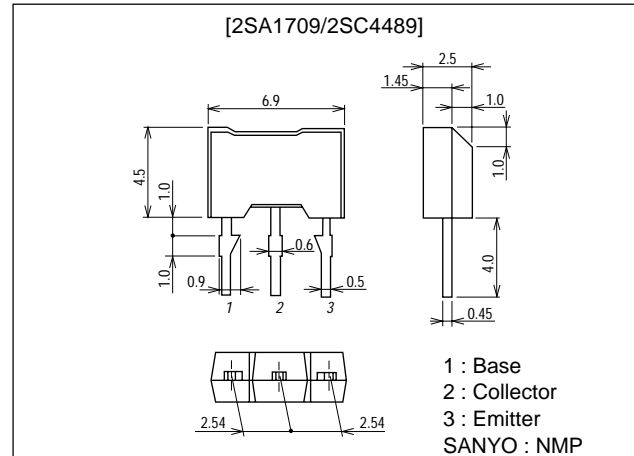
#### Features

- Adoption of FBET, MBIT processes.
- High breakdown voltage, large current capacity.
- Fast switching speed.

#### Package Dimensions

unit:mm

2064A



() 2SA1709

#### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		(-120)	V
Collector-to-Emitter Voltage	$V_{CE0}$		(-100)	V
Emitter-to-Base Voltage	$V_{EBO}$		(-6)	V
Collector Current	$I_C$		(-2)	A
Collector Current (Pulse)	$I_{CP}$		(-3)	A
Collector Dissipation	$P_C$		1	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	$I_{CBO}$	$V_{CB} = (-)100\text{V}, I_E = 0$			(-100)	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4\text{V}, I_C = 0$			(-100)	nA
DC Current Gain	$h_{FE}$	$V_{CE} = (-)5\text{V}, I_C = (-)100\text{mA}$	100*		400*	
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)10\text{V}, I_C = (-)100\text{mA}$		120		MHz

\* : The 2SA1709/2SC4489 are classified by 100mA  $h_{FE}$  as follows :

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Rank	R	S	T
$h_{FE}$	100 to 200	140 to 280	200 to 400

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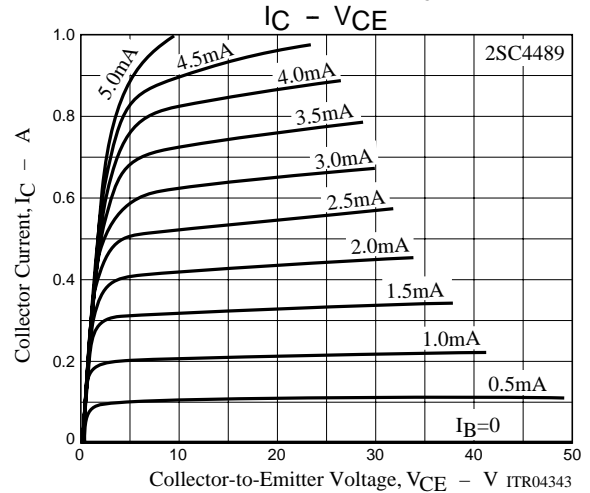
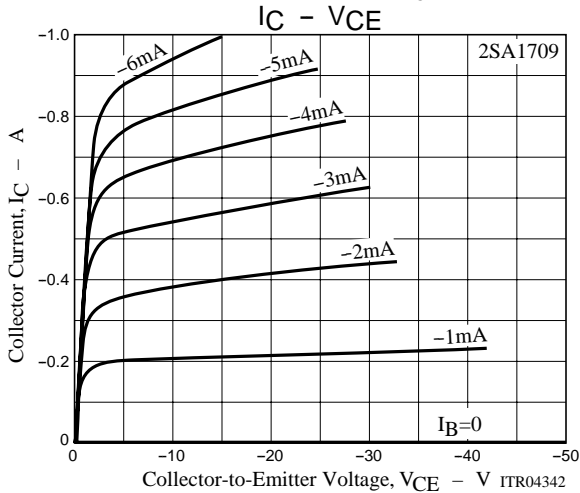
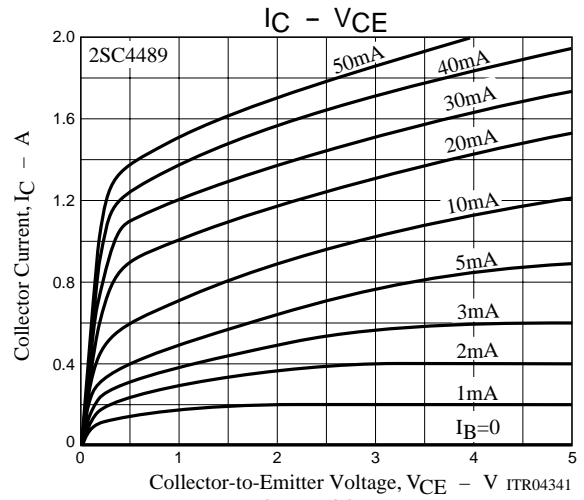
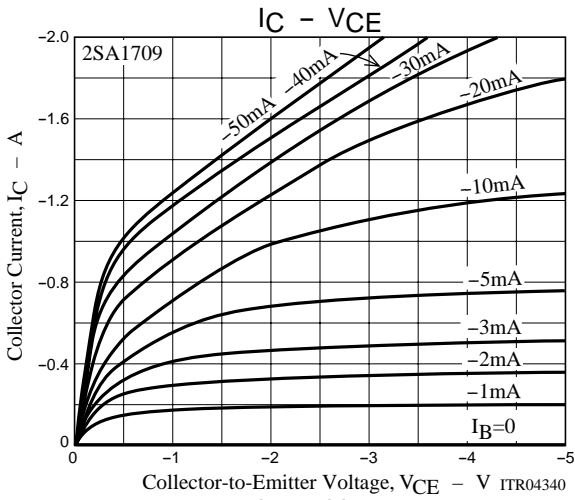
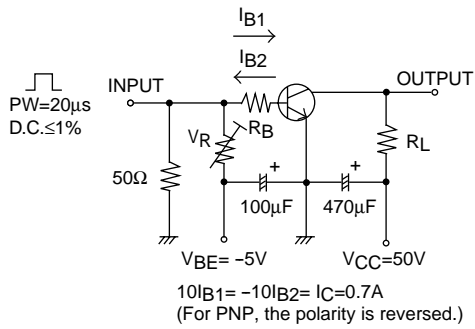
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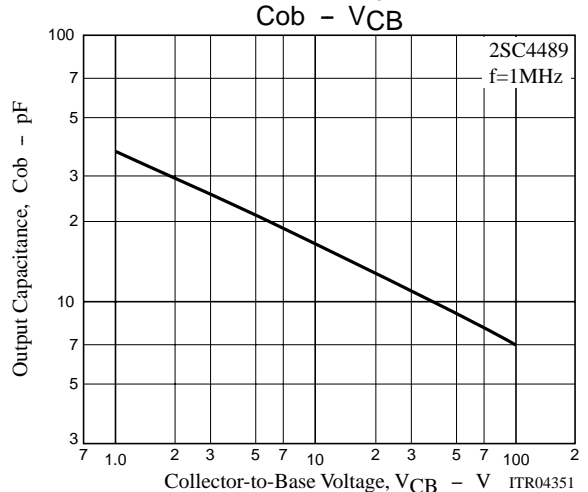
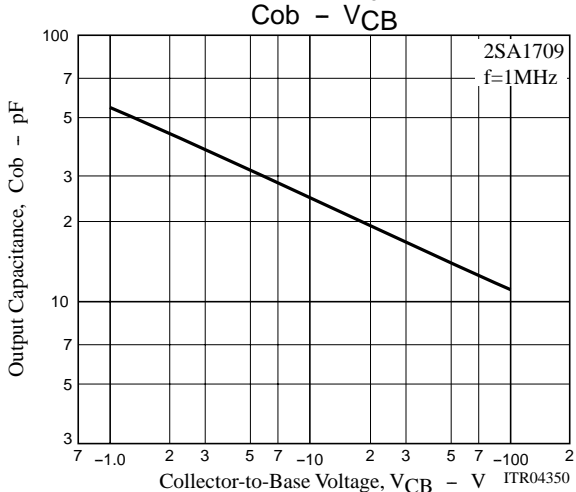
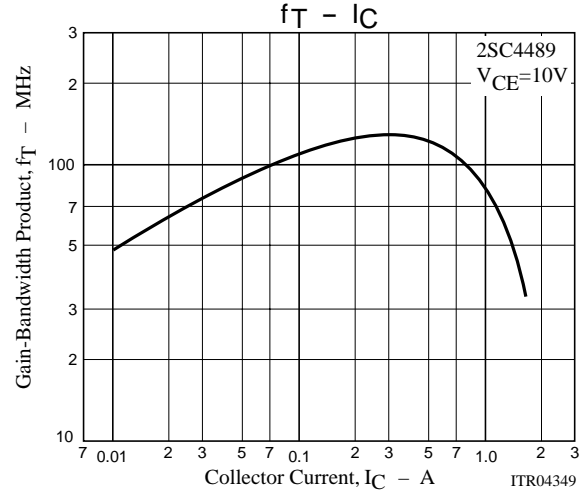
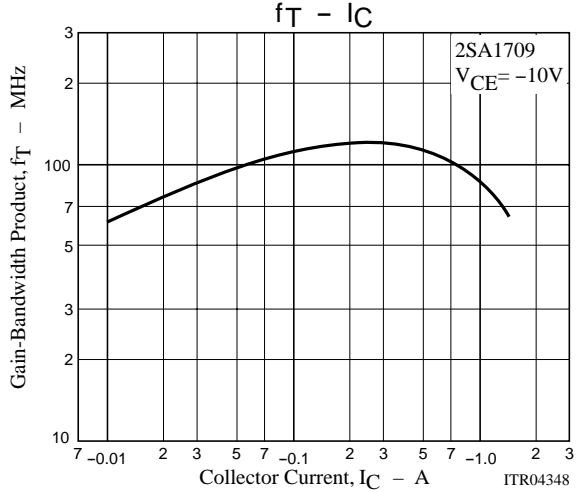
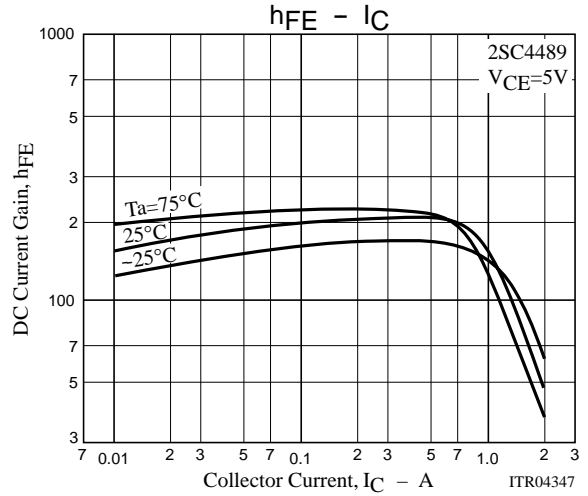
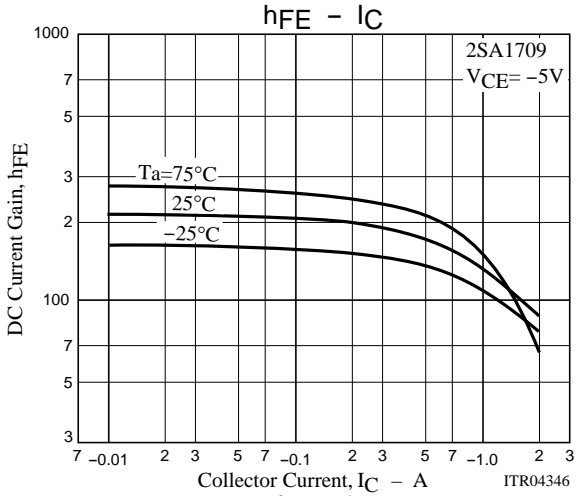
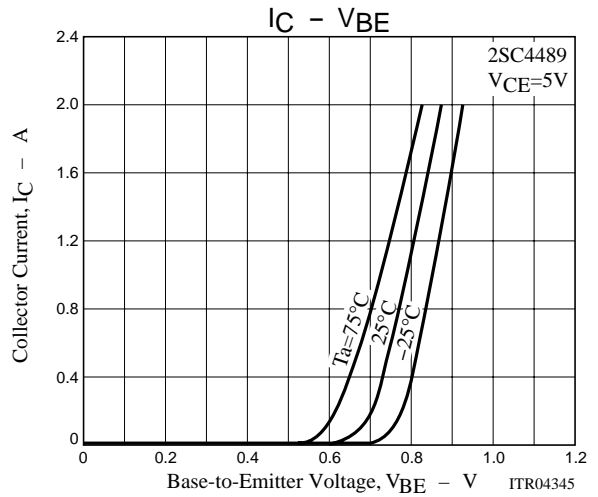
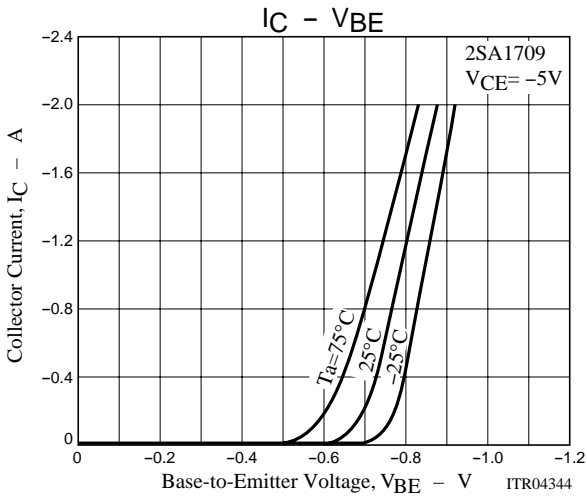
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)1A, I_B=(-)100mA$		(-0.22)	(-0.6)	V
				0.13	0.4	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)1A, I_B=(-)100mA$		(-0.85)	(-1.2)	V
Output Capacitance	$C_{ob}$	$V_{CB}=(-)10V, f=1MHz$		(25)16		pF
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-)	120		V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)	100		V
Emitter-to-Base Breakdown Voltage	$V_{(BR)CEO}$	$I_E=(-)10\mu A, I_C=0$	(-)	6		V
Turn-ON Time	$t_{on}$	See specified Test Circuit		80		ns
Storage Time	$t_{stg}$	See specified Test Circuit		(750)		ns
				1000		ns
Fall Time	$t_f$	See specified Test Circuit		(40)50		ns

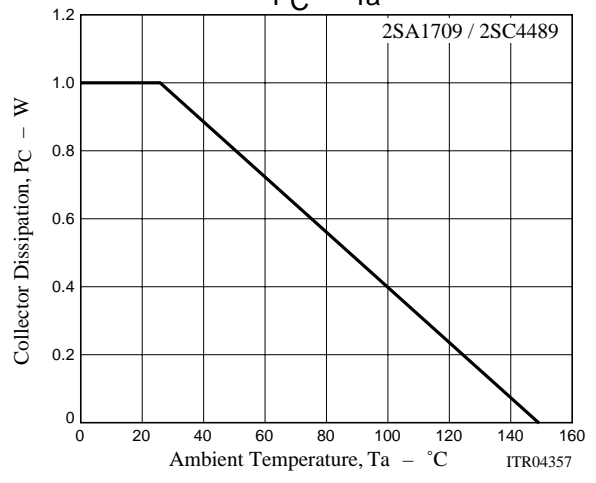
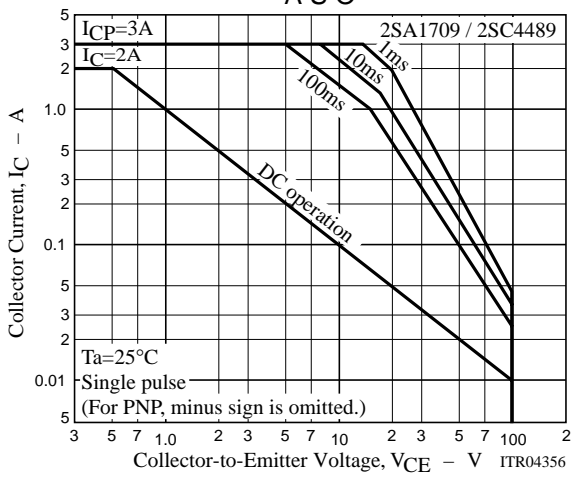
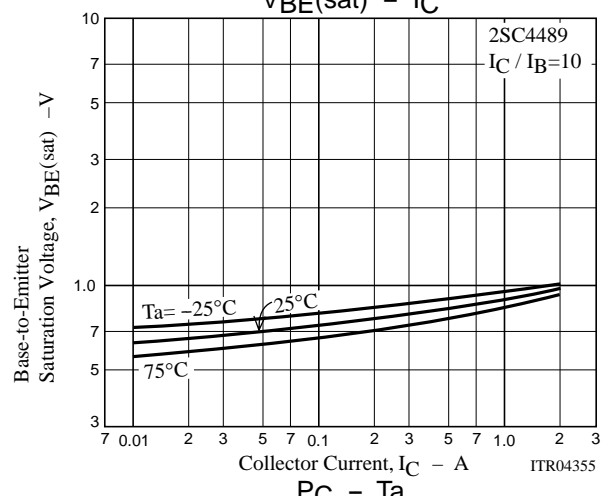
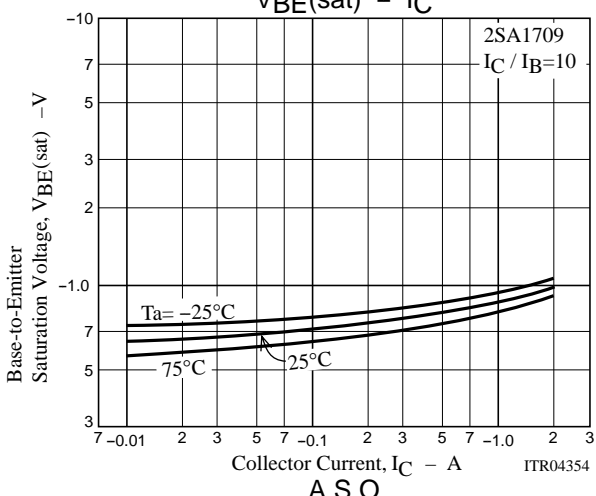
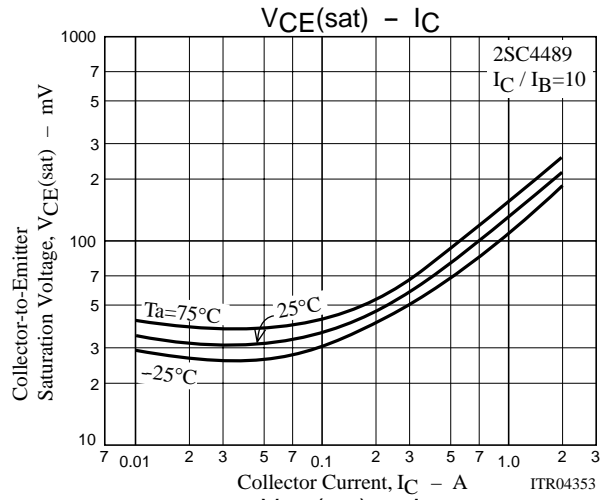
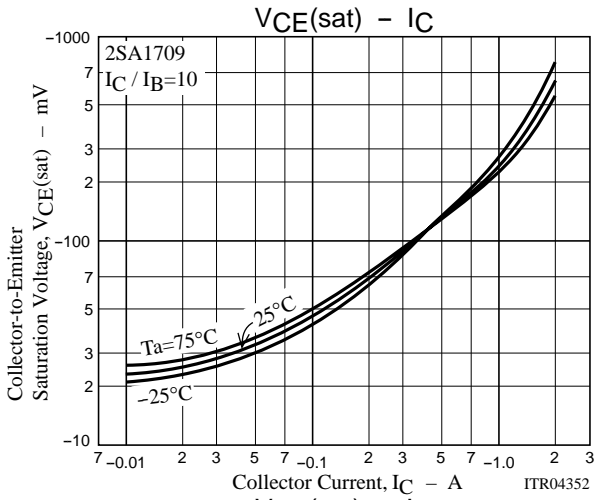
## Switching Time Test Circuit



# 2SA1709/2SC4489



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