



# 2SB1455/2SD2203

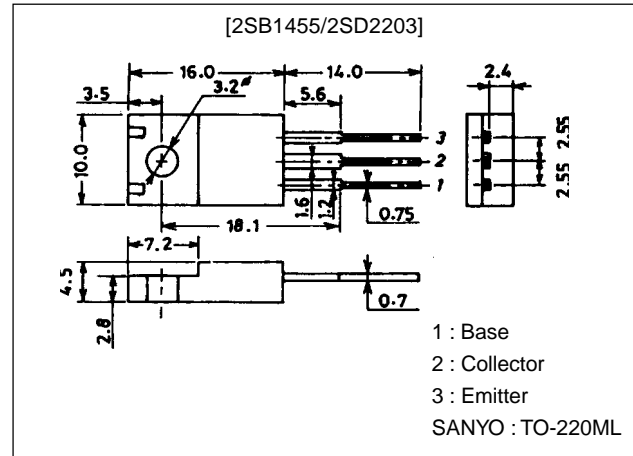
## 80V/7A High-Current Switching Applications

### Features

- Low collector-to-emitter saturation voltage.
- Large current capacity.
- Micaless package facilitating easy mounting.

### Package Dimensions

unit:mm  
2041A



( ) : 2SB1455

### Specifications

#### Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		(-)90	V
Collector-to-Emitter Voltage	$V_{CE0}$		(-)80	V
Emitter-to-Base Voltage	$V_{EB0}$		(-)6	V
Collector Current	$I_C$		(-)7	A
Collector Current (Pulse)	$I_{CP}$		(-)12	A
Collector Dissipation	$P_C$		2.0	W
		$T_c=25^\circ\text{C}$	30	W
Junction Temperature	$T_J$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

#### Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-80\text{V}, I_E=0$			(-)0.1	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-4\text{V}, I_C=0$			(-)0.1	mA
DC Current Gain	$h_{FE1}$	$V_{CE}=-2\text{V}, I_C=-1\text{A}$	70*		280*	
	$h_{FE2}$	$V_{CE}=-2\text{V}, I_C=-4\text{A}$	30			
Gain-Bandwidth Product	$f_T$	$V_{CE}=-5\text{V}, I_C=-1\text{A}$		20		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-4\text{A}, I_B=-0.4\text{A}$			0.4	V
					(-)0.5	V

\* : The 2SB1455/2SD2203 are classified by 1A  $h_{FE}$  as follows :

70	Q	140	100	R	200	140	S	280
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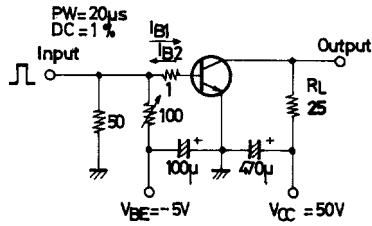
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# 2SB1455/2SD2203

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)1\text{mA}, I_E = 0$	(-)90			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1\text{mA}, R_{BE} = \infty$	(-)80			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)1\text{mA}, I_C = 0$	(-)6			V
Turn-ON Time	$t_{on}$	See specified test circuit.		(0.2)		$\mu\text{s}$
				0.1		$\mu\text{s}$
Storage Time	$t_{stg}$	See specified test circuit.		(0.7)		$\mu\text{s}$
				1.6		$\mu\text{s}$
Fall Time	$t_f$	See specified test circuit.		(0.2)		$\mu\text{s}$
				0.4		$\mu\text{s}$

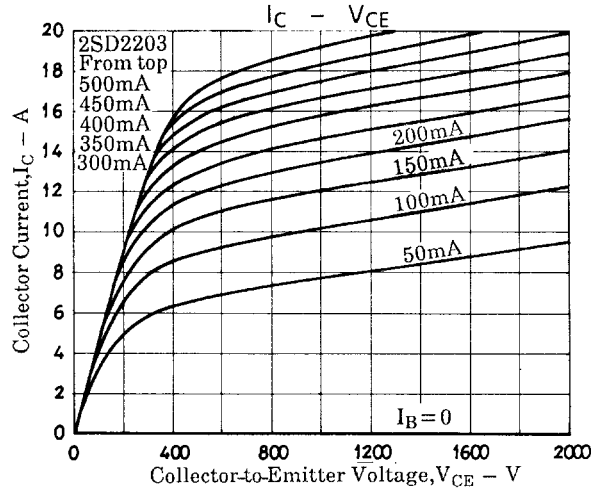
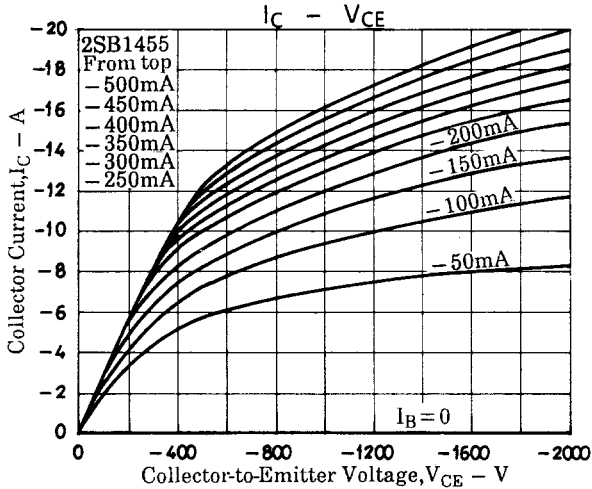
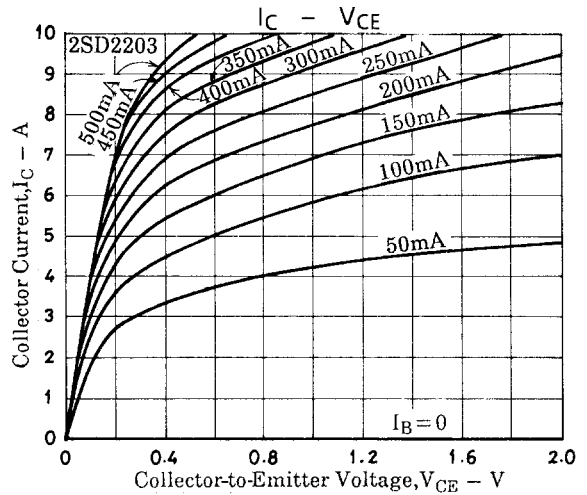
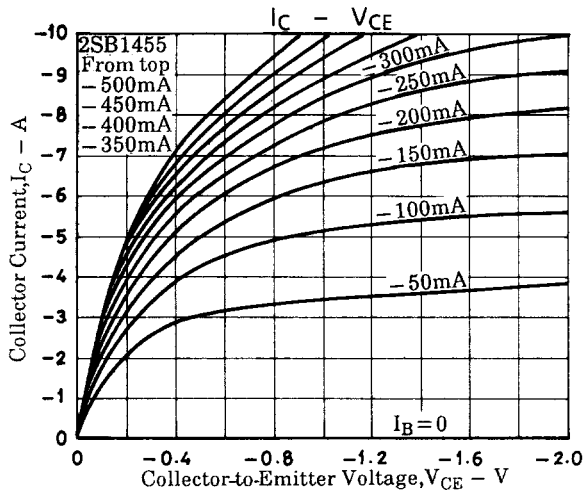
## Switching Time Test Circuit



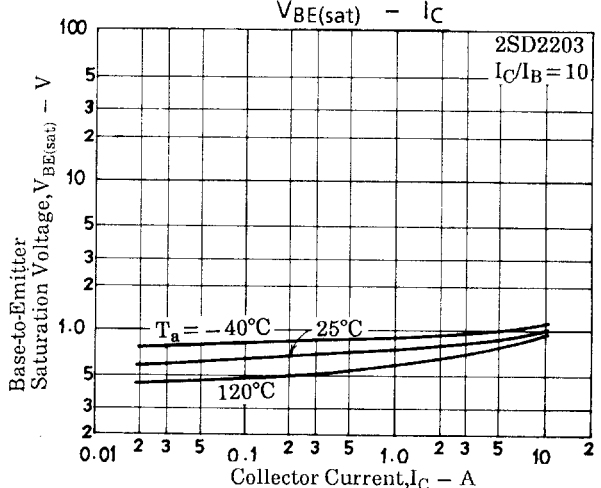
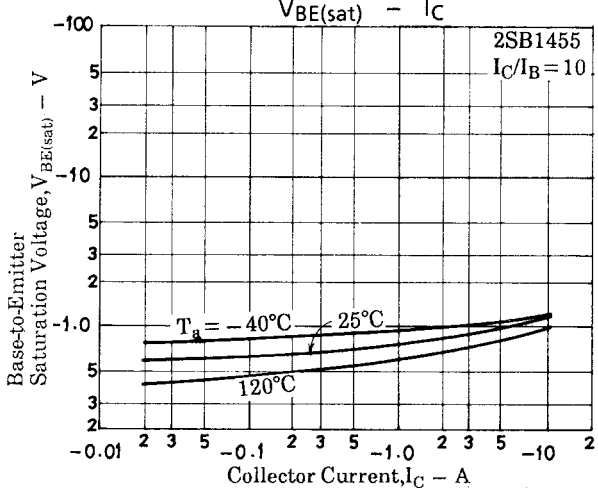
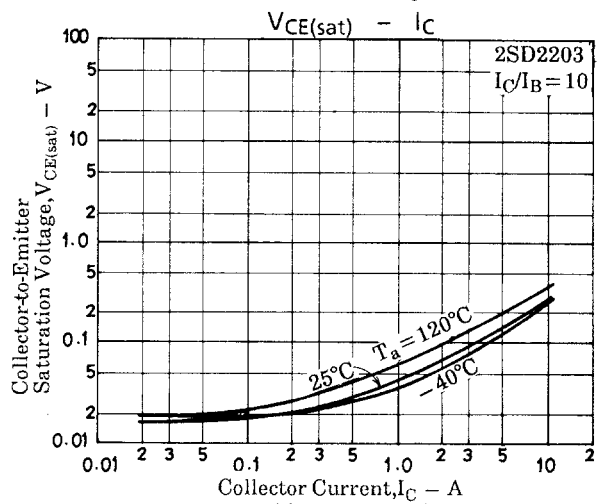
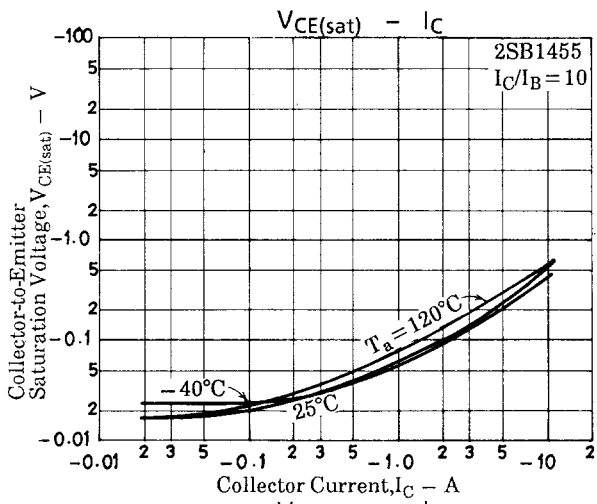
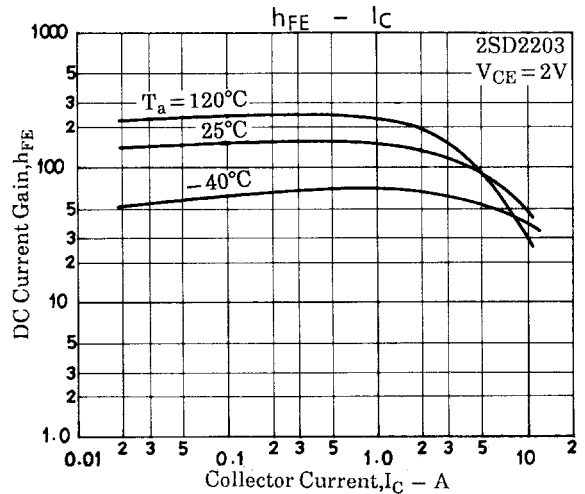
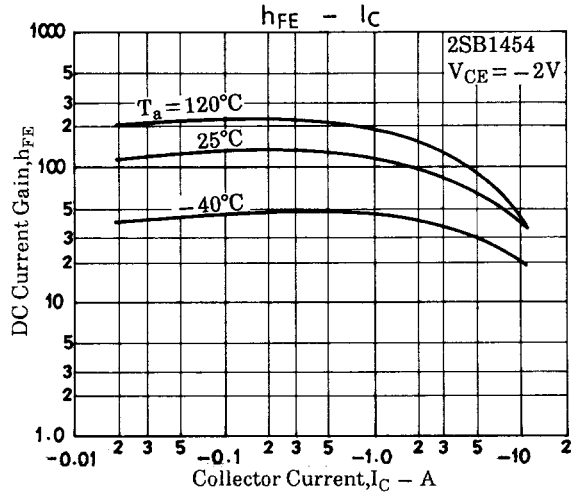
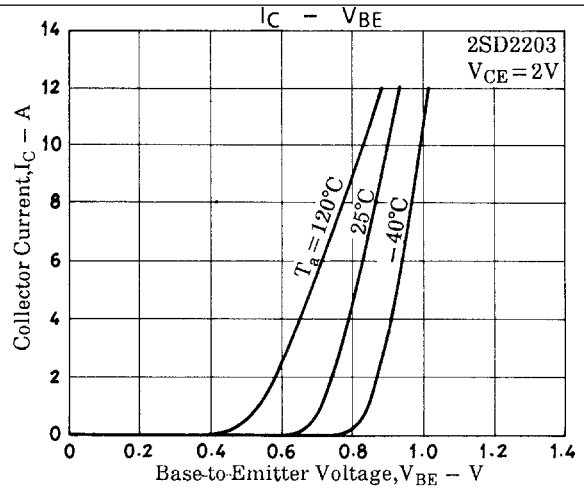
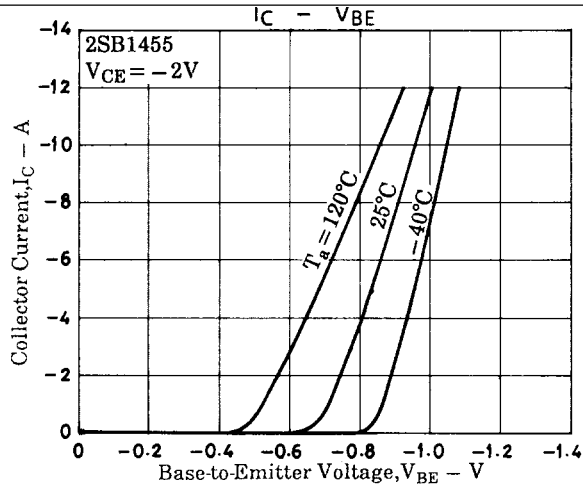
$10 I_{B1} = -10 I_{B2} = I_C = 2\text{A}$

For PNP, the polarity is reversed.

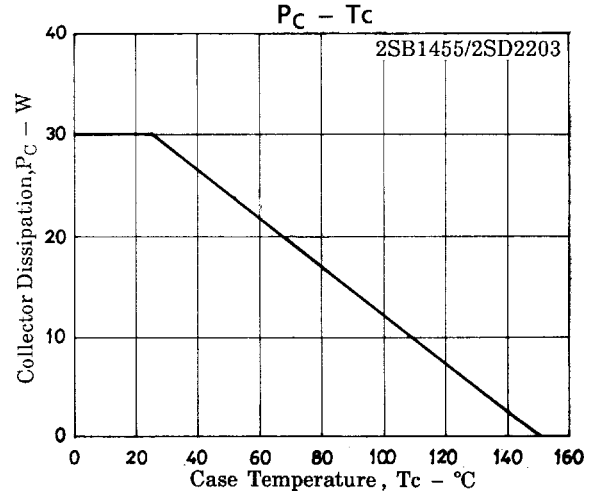
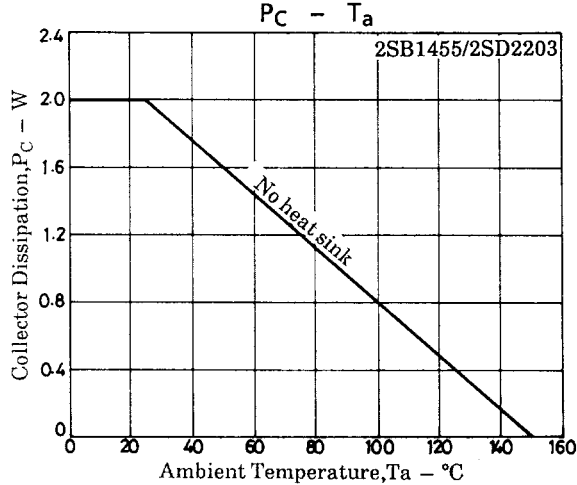
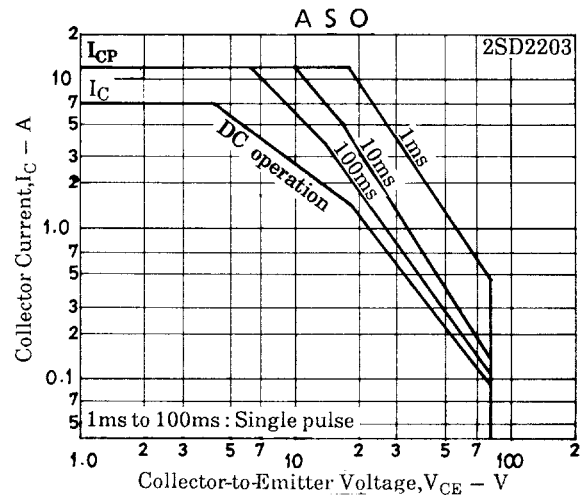
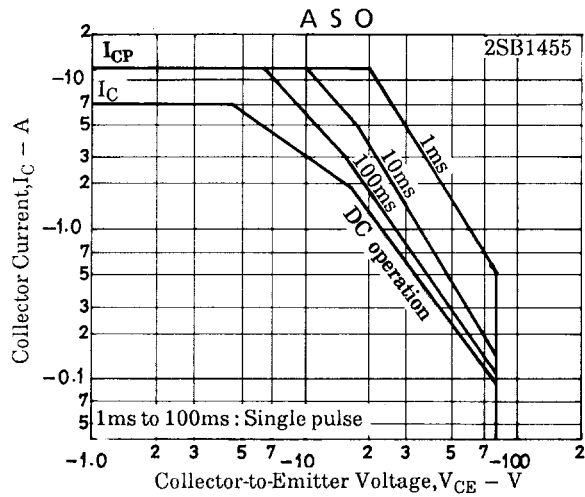
Unit (resistance :  $\Omega$ , capacitance : F)



# 2SB1455/2SD2203



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