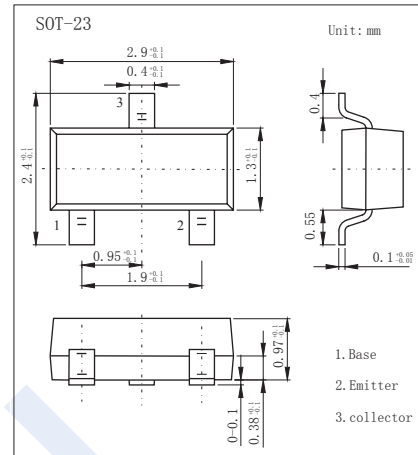


NPN Transistors

2SD780

■ Features

- High DC current gain
- Complimentary to 2SB736

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	60	V
Collector - Emitter Voltage	V_{CE0}	60	
Emitter - Base Voltage	V_{EB0}	5	
Collector Current - Continuous	I_c	300	mA
Collector Power Dissipation	P_c	200	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 150	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CB0}	$I_c = 100 \mu\text{A}, I_E = 0$	60			V
Collector- emitter breakdown voltage	V_{CE0}	$I_c = 1 \text{ mA}, I_B = 0$	60			
Emitter - base breakdown voltage	V_{EB0}	$I_E = 100 \mu\text{A}, I_c = 0$	5			
Collector-base cut-off current	I_{CB0}	$V_{CB} = 50 \text{ V}, I_E = 0$			0.1	μA
Emitter cut-off current	I_{EB0}	$V_{EB} = 5 \text{ V}, I_c = 0$			0.1	
Collector-emitter saturation voltage (Note.1)	$V_{CE(sat)}$	$I_c = 300 \text{ mA}, I_B = 30 \text{ mA}$		0.15	0.6	V
Base - emitter saturation voltage (Note.1)	$V_{BE(sat)}$	$I_c = 300 \text{ mA}, I_B = 30 \text{ mA}$			1.2	
Base - emitter voltage (Note.1)	V_{BE}	$V_{CE} = 6 \text{ V}, I_c = 10 \text{ mA}$	600	645	700	mV
DC current gain (Note.1)	$h_{FE(1)}$	$V_{CE} = 1 \text{ V}, I_c = 50 \text{ mA}$	110	200	400	
	$h_{FE(2)}$	$V_{CE} = 2 \text{ V}, I_c = 300 \text{ mA}$	30			
Collector output capacitance	C_{ob}	$V_{CB} = 6 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		7		pF
Transition frequency	f_T	$V_{CE} = 6 \text{ V}, I_E = -10 \text{ mA}$		140		MHz

Note.1: Pulse test : Pulse width $\leq 350 \mu\text{s}$, Duty Cycle $\leq 2\%$.

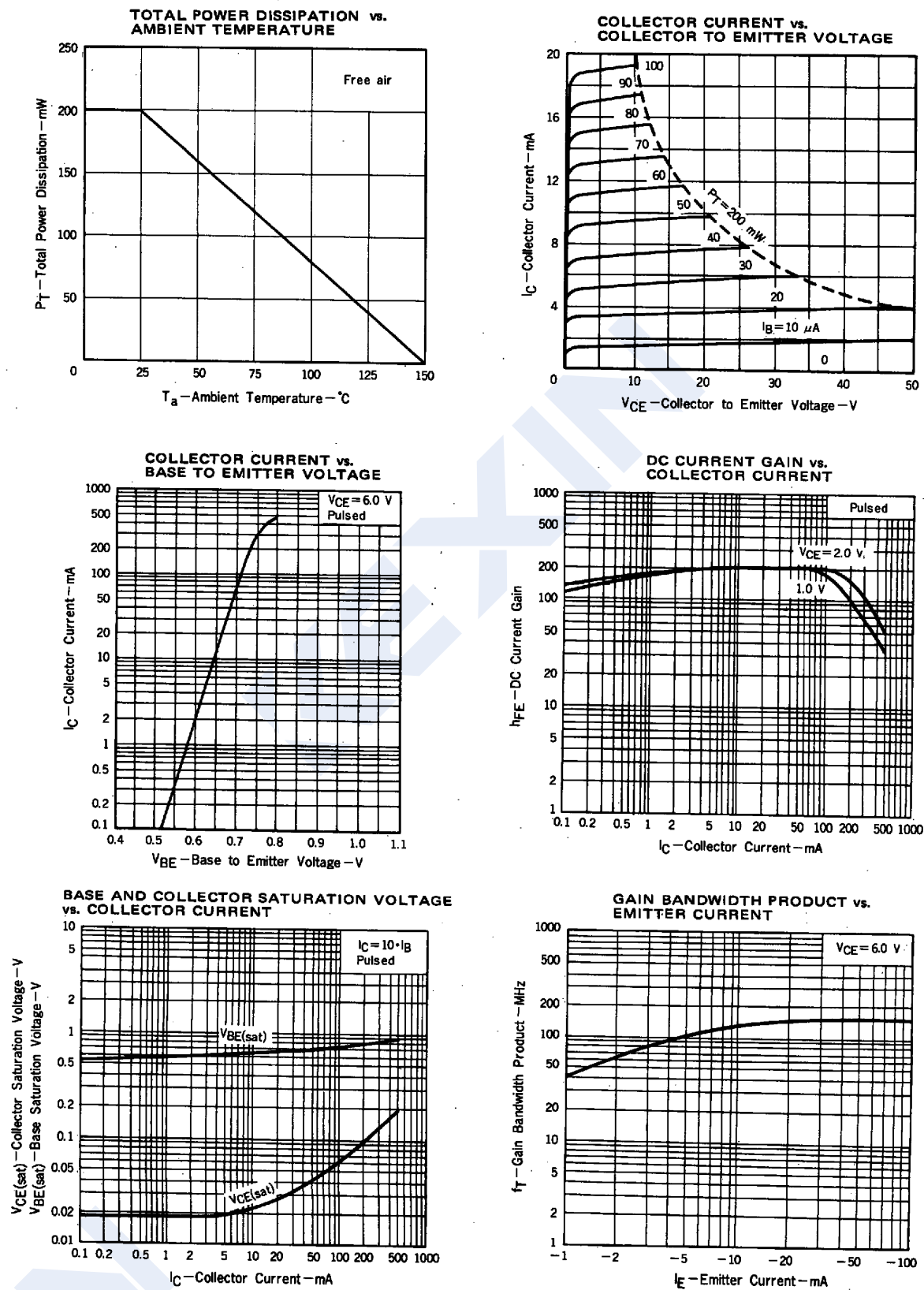
■ Classification of $h_{FE(1)}$

Type	2SD780-DW1	2SD780-DW2	2SD780-DW3	2SD780-DW4	2SD780-DW5
Range	110-180	135-220	170-270	200-320	250-400
Marking	DW1	DW2	DW3	DW4	DW5

NPN Transistors

2SD780

■ Typical Characteristics



NPN Transistors

2SD780

■ Typical Characteristics

