

NPN Transistors

2SC2780

■ Features

- Collector Current Capability $I_C=50\text{mA}$
- Collector Emitter Voltage $V_{CEO}=140\text{V}$
- Complementary to 2SA1173

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	140	V
Collector - Emitter Voltage	V_{CEO}	140	
Emitter - Base Voltage	V_{EBO}	5	
Collector Current - Continuous	I_C	50	mA
Collector Current - Pluse (Note.1)	I_{CP}	100	
Collector Power Dissipation	P_C	2	W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 150	

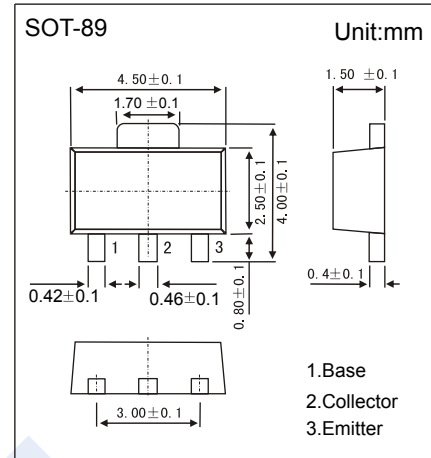
Note.1 : $PW \leq 10\text{ms}$, Duty Cycle $\leq 50\%$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C = 100\text{ }\mu\text{A}$, $I_E = 0$	140			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C = 1\text{ mA}$, $I_B = 0$	140			
Emitter - base breakdown voltage	V_{EBO}	$I_E = 100\text{ }\mu\text{A}$, $I_C = 0$	5			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 140\text{ V}$, $I_E = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{ V}$, $I_C = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 20\text{ mA}$, $I_B = 2\text{ mA}$			0.6	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 20\text{ mA}$, $I_B = 2\text{ mA}$			1	
Base - emitter voltage	V_{BE}	$V_{CE} = 10\text{ V}$, $I_C = 10\text{ mA}$	0.65		0.75	
DC current gain	h_{FE}	$V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$	50			
		$V_{CE} = 10\text{ V}$, $I_C = 10\text{ mA}$	90		400	
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$		2.3		pF
Transition frequency	f_T	$V_{CE} = 10\text{ V}$, $I_E = -10\text{ mA}$		120		MHz

■ Classification of $h_{FE}(2)$

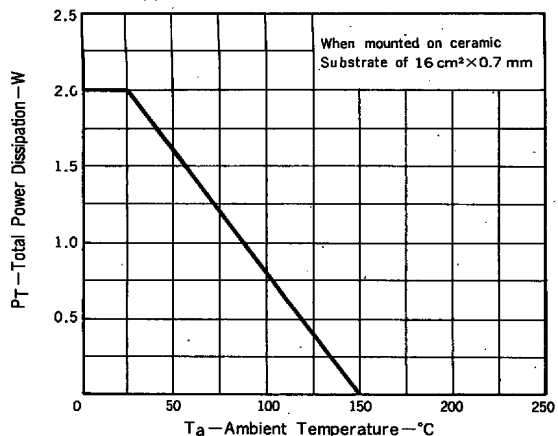
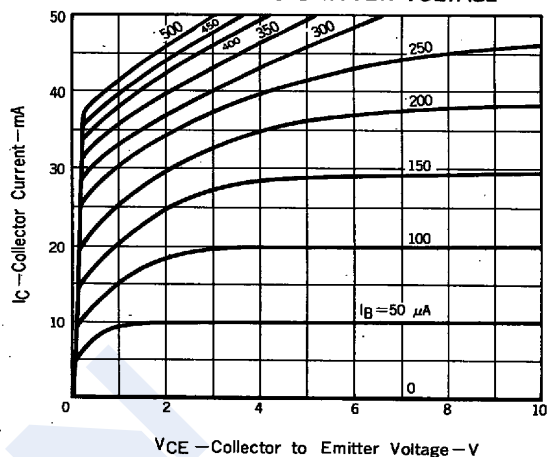
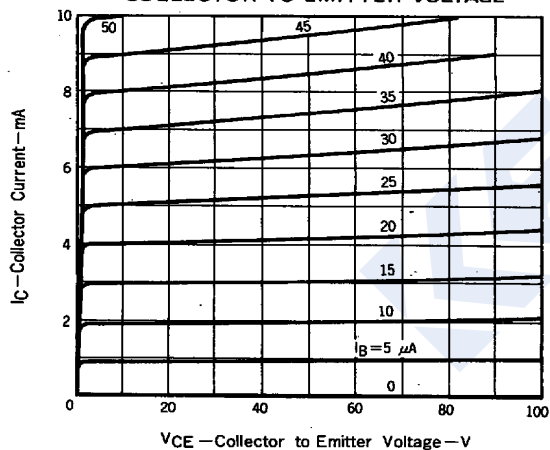
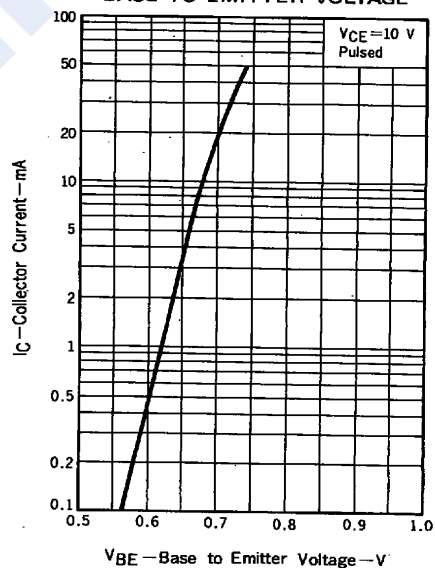
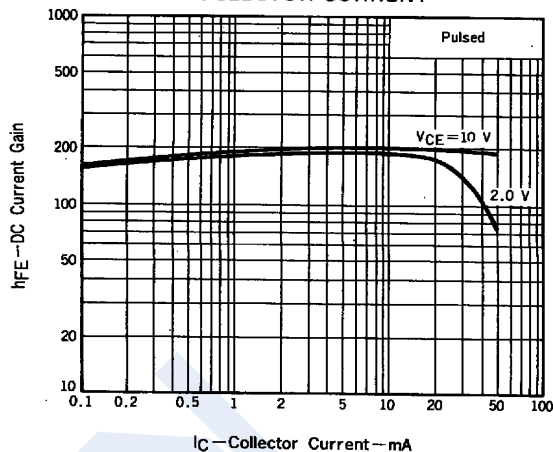
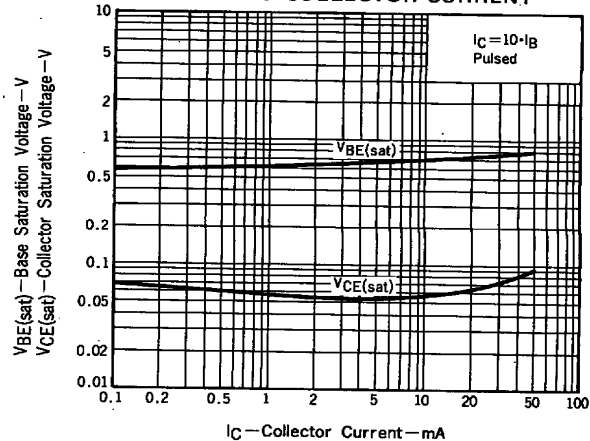
Type	2SC2780-M	2SC2780-L	2SC2780-K
Range	90-180	135-270	200-400
Marking	NM	NL	NK



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■ Typical Characteristics

TOTAL POWER DISSIPATION vs.
AMBIENT TEMPERATURECOLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGECOLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGECOLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGEDC CURRENT GAIN vs.
COLLECTOR CURRENTBASE AND COLLECTOR SATURATION
VOLTAGE vs. COLLECTOR CURRENT

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■ Typical Characteristics

