

2SA2057

Silicon PNP epitaxial planar type

Power supply for audio & visual equipments

such as TVs and VCRs

Industrial equipments such as DC-DC converters

■ Features

- High speed switching (t_{stg} : storage time/ t_f : fall time is short)
- Low collector-emitter saturation voltage $V_{CE(sat)}$
- Superior forward current transfer ratio h_{FE} linearity
- TO-220D built-in: Excellent package with withstand voltage 5 kV guaranteed

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V _{CBO}	−60	V
Collector-emitter voltage (Base open)	V _{CEO}	−60	V
Emitter-base voltage (Collector open)	V _{EBO}	−6	V
Collector current	I _C	−3	A
Peak collector current *	I _{CP}	−6	A
Collector power dissipation	P _C	20	W
		2.0	
	T _a = 25°C		
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	−55 to +150	°C

(Note) *: Non-repetitive peak collector current

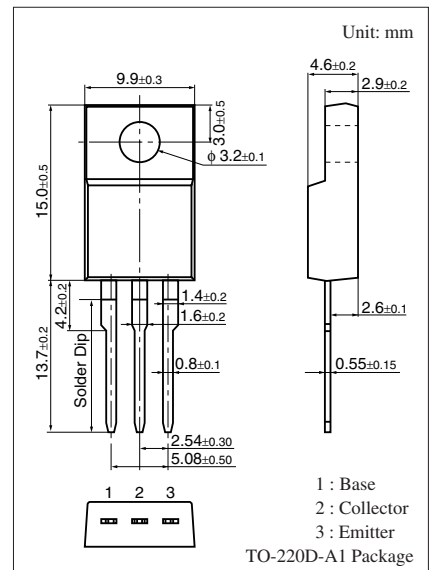
■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = -10\text{ mA}$, $I_B = 0$	-60			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = -60\text{ V}$, $I_E = 0$			-100	μA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = -60\text{ V}$, $I_B = 0$			-100	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = -6\text{ V}$, $I_C = 0$			-1	mA
Forward current transfer ratio	h_{FE1} *	$V_{CE} = -4\text{ V}$, $I_C = -1\text{ A}$	120		320	—
	h_{FE2}	$V_{CE} = -4\text{ V}$, $I_C = -3\text{ A}$	40			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -3\text{ A}$, $I_B = -0.375\text{ A}$			-0.5	V
Transition frequency	f_T	$V_{CE} = -10\text{ V}$, $I_C = -0.1\text{ A}$, $f = 10\text{ MHz}$		90		MHz
Turn-on time	t_{on}	$I_C = -1\text{ A}$, Resistance loaded $I_{B1} = -0.1\text{ A}$, $I_{B2} = 0.1\text{ A}$ $V_{CC} = 50\text{ V}$		0.15	0.30	μs
Storage time	t_{stg}			0.4	0.7	μs
Fall time	t_f			0.10	0.15	μs

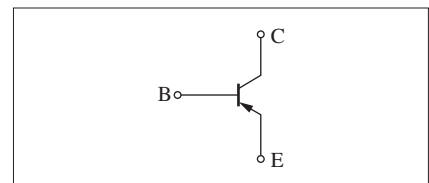
(Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

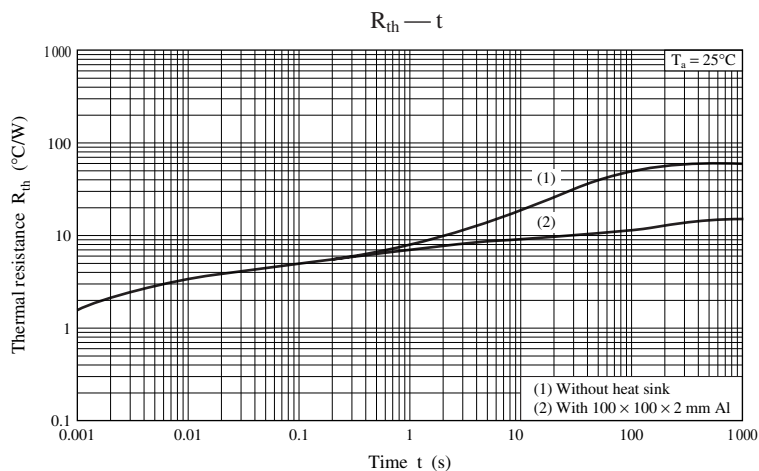
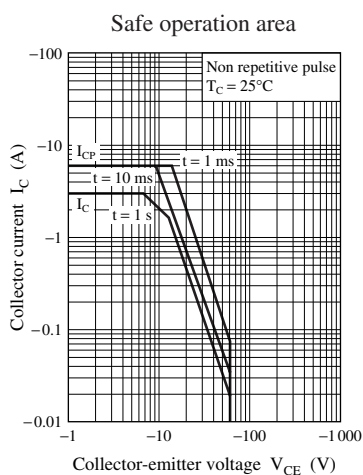
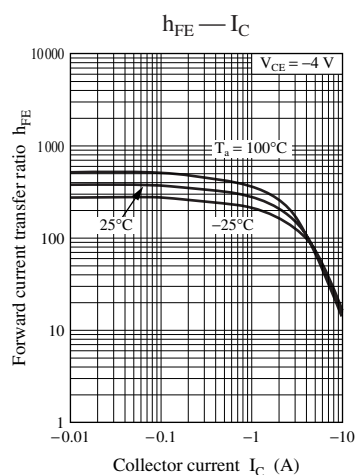
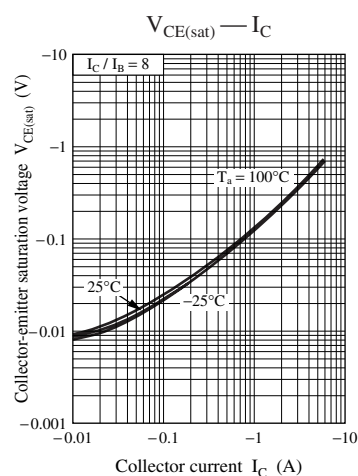
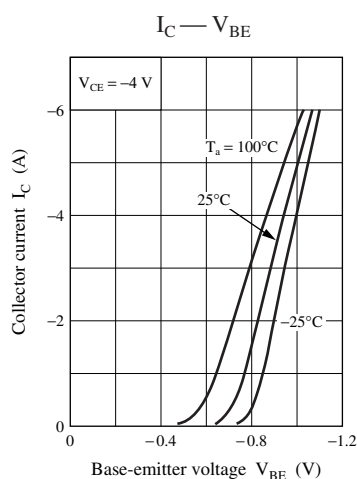
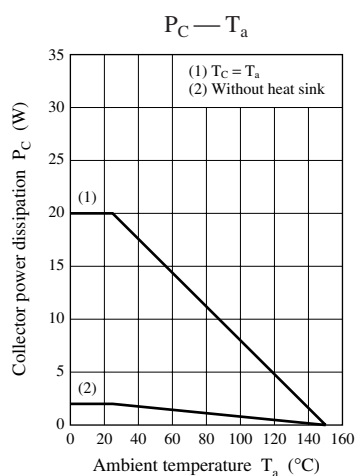
2. *: Rank classification

Rank	Q	P
h_{FE1}	120 to 250	160 to 320



Internal Connection





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