

2SD0638 (2SD638)

Silicon NPN epitaxial planar type

For medium-power general amplification

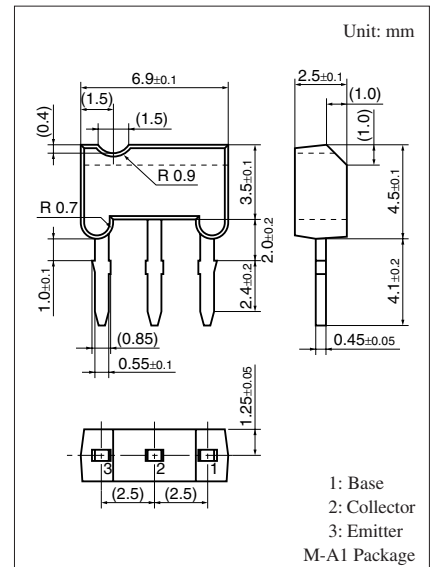
Complementary to 2SB0643 (2SB643)

■ Features

- Low collector-emitter saturation voltage $V_{CE(sat)}$
- M type package allowing easy automatic and manual insertion as well as stand-alone fixing to the printed circuit board.

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	30	V
Collector-emitter voltage (Base open)	V_{CEO}	25	V
Emitter-base voltage (Collector open)	V_{EBO}	7	V
Collector current	I_C	0.5	A
Peak collector current	I_{CP}	1	A
Collector power dissipation *	P_C	600	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$



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

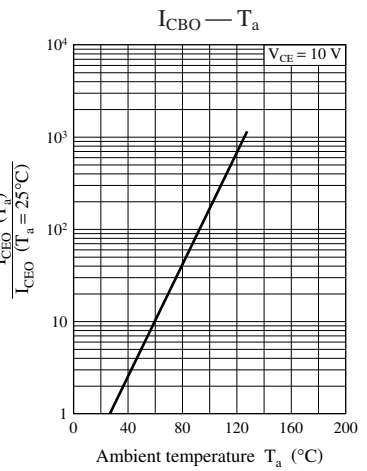
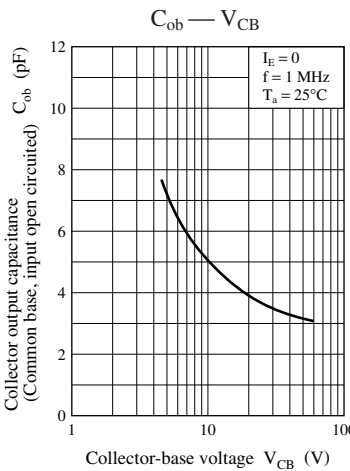
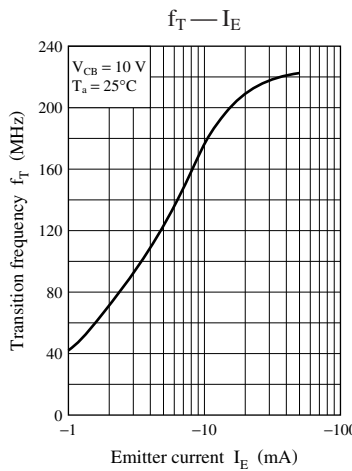
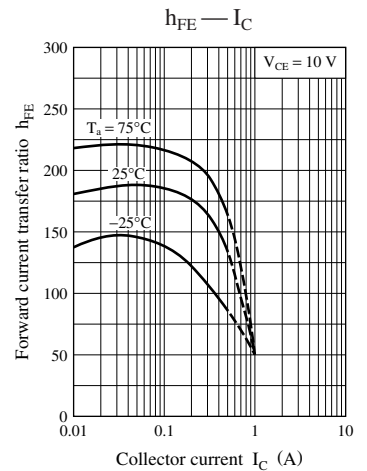
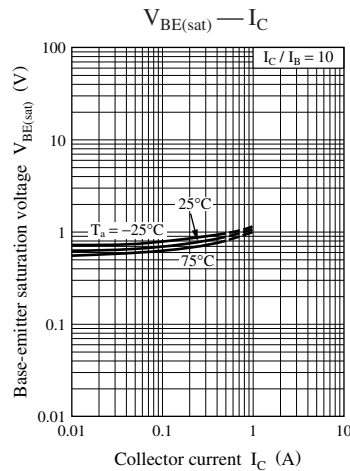
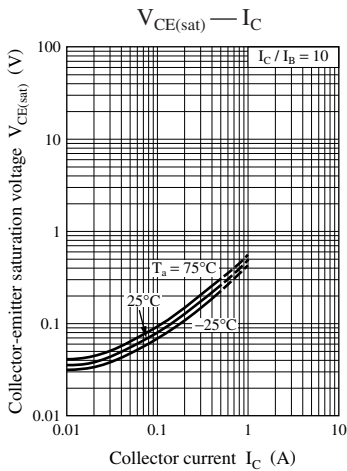
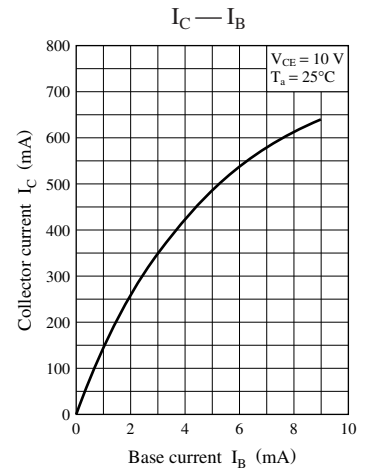
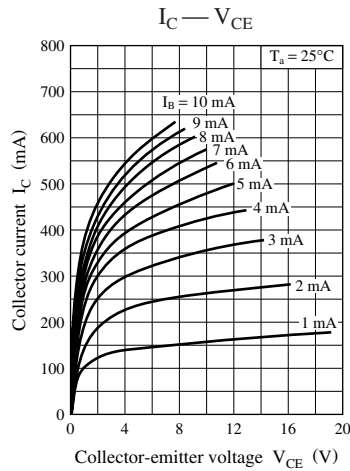
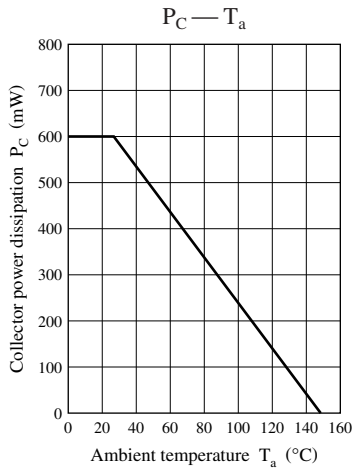
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = 10 \mu\text{A}$, $I_E = 0$	30			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 2 \text{ mA}$, $I_B = 0$	25			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = 10 \mu\text{A}$, $I_C = 0$	7			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 20 \text{ V}$, $I_E = 0$			0.1	μA
Base-emitter saturation voltage	I_{CEO}	$V_{CE} = 20 \text{ V}$, $I_B = 0$			1	μA
Forward current transfer ratio	h_{FE1} *	$V_{CE} = 10 \text{ V}$, $I_C = 10 \text{ mA}$	85		340	—
	h_{FE2}	$V_{CE} = 10 \text{ V}$, $I_C = 500 \text{ mA}$	40	90		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 300 \text{ mA}$, $I_B = 30 \text{ mA}$		0.35	0.6	V
Transition frequency	f_T	$V_{CB} = 10 \text{ V}$, $I_E = -50 \text{ mA}$, $f = 200 \text{ MHz}$		200		MHz
Collector output capacitance (Common base, input open circuited)	C_{ob}	$V_{CB} = 10 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$		6	15	pF

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

2. *: Rank classification

Rank	Q	R	S
h_{FE1}	85 to 170	120 to 240	170 to 340

Note) The part number in the parenthesis shows conventional part number.



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