# 2SD0638 (2SD638)

### Silicon NPN epitaxial planar type

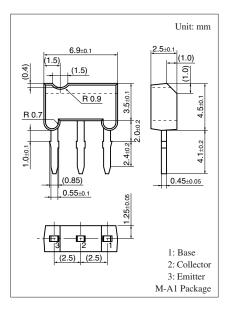
For medium-power general amplification Complementary to 2SB0643 (2SB643)

#### Features

- Low collector-emitter saturation voltage V<sub>CE(sat)</sub>
- M type package allowing easy automatic and manual insertion as well as stand-alone fixing to the printed circuit board.

Parameter	Symbol	Rating	Unit	
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Collector-base voltage (Emitter open)	V <sub>CBO</sub>	30	V	
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	25	V	
Emitter-base voltage (Collector open)	V <sub>EBO</sub>	7	V	
Collector current	I <sub>C</sub>	0.5	А	
Peak collector current	I <sub>CP</sub>	1	А	
Collector power dissipation *	P <sub>C</sub>	600	mW	
Junction temperature	Tj	150	°C	
Storage temperature	T <sub>stg</sub>	-55 to +150	°C	





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

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

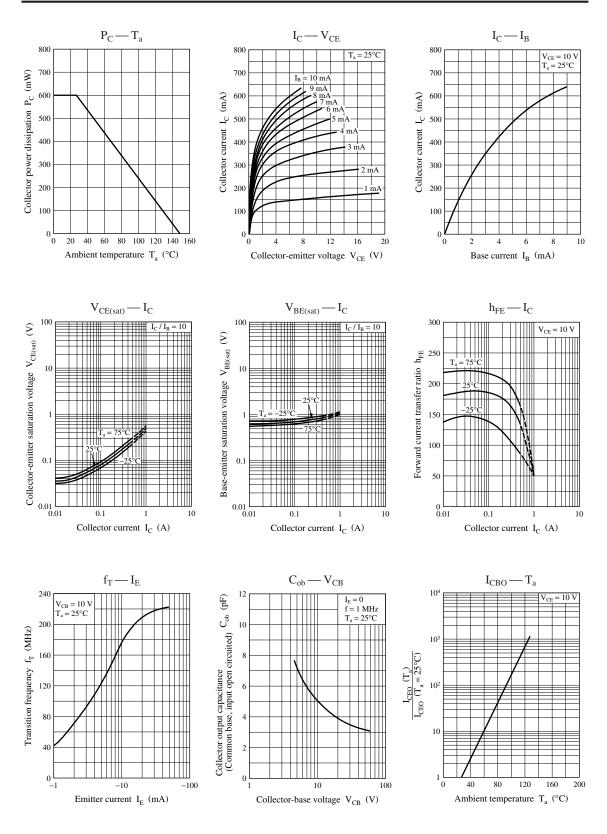
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*: Rank classification

Rank	Q	R	S	
h <sub>FE1</sub>	85 to 170	120 to 240	170 to 340	

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

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