

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

2SC3076

POWER AMPLIFIER APPLICATIONS

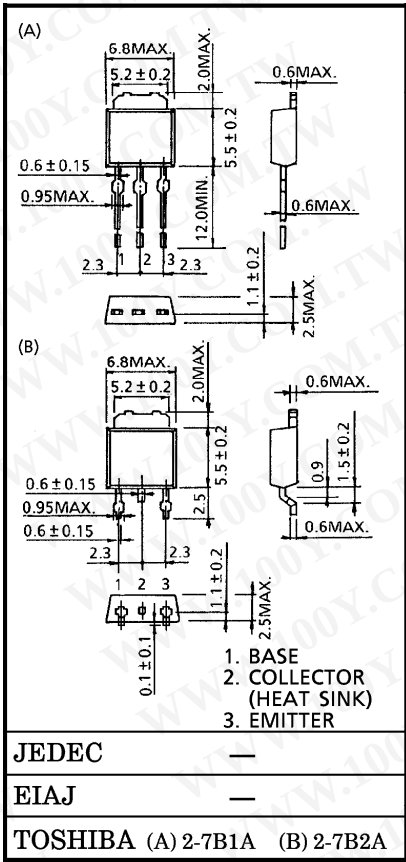
POWER SWITCHING APPLICATIONS

- Low Collector Saturation Voltage
: $V_{CE(sat)} = 0.5 \text{ V (Max.) (I_C = 1 A)}$
- Excellent Switching Time : $t_{stg} = 1.0 \mu\text{s (Typ.)}$
- Complementary to 2SA1241

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	50	V
Collector-Emitter Voltage		V_{CEO}	50	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current		I_C	2	A
Base Current		I_B	1	A
Collector Power Dissipation	$T_a = 25^\circ\text{C}$	P_C	1.0	W
	$T_c = 25^\circ\text{C}$		10	
Junction Temperature		T_j	150	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	$-55 \sim 150$	$^\circ\text{C}$

Unit in mm



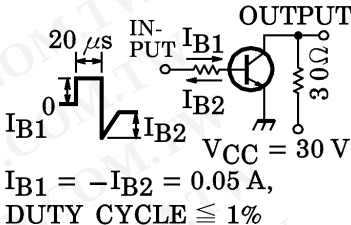
Weight : 0.36 g

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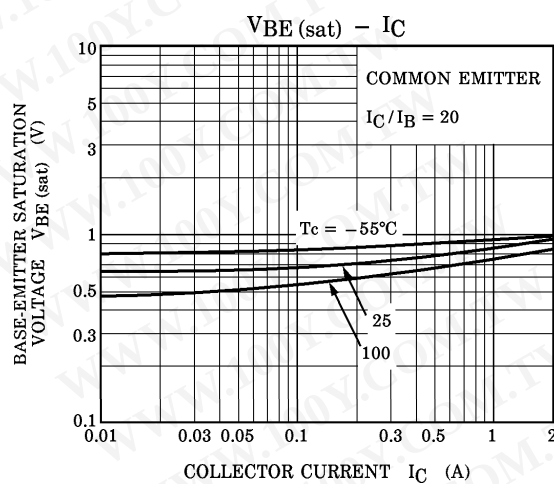
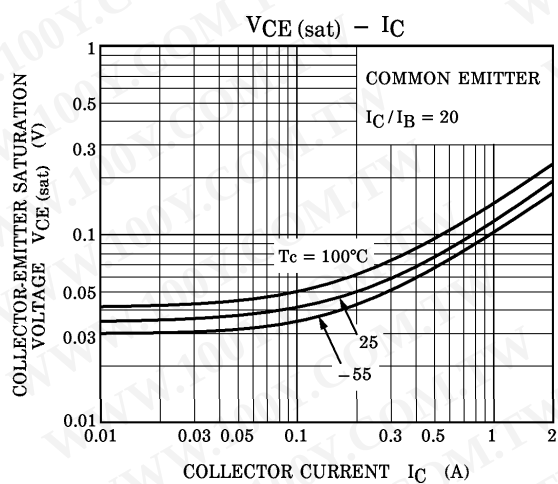
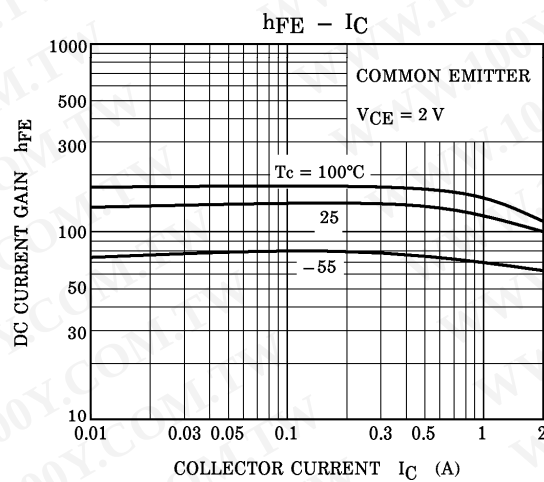
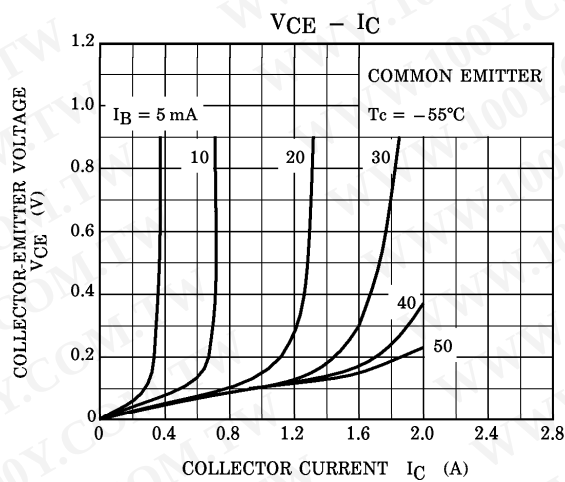
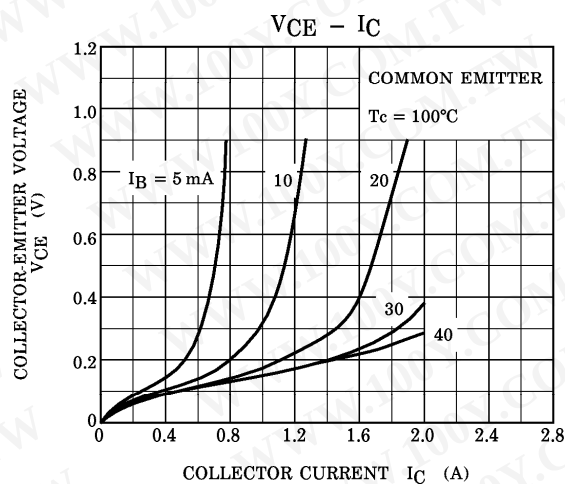
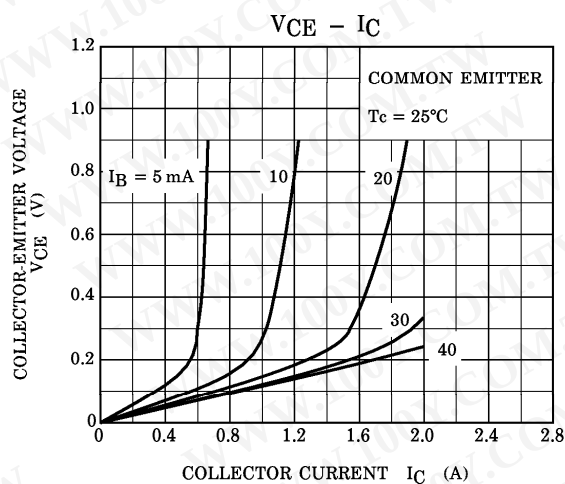
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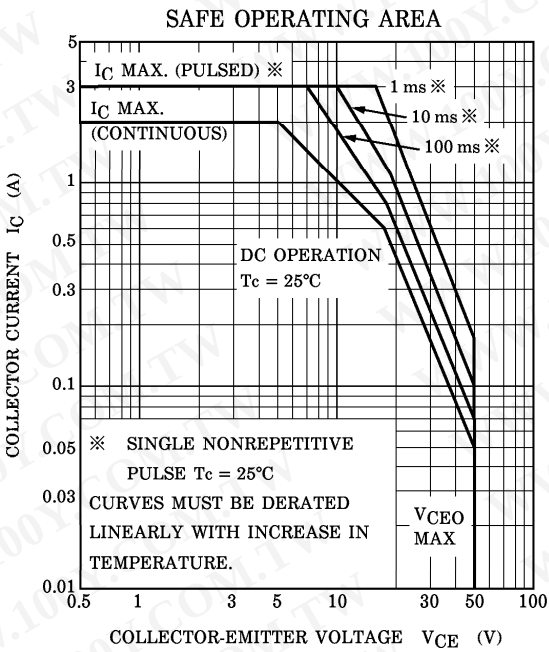
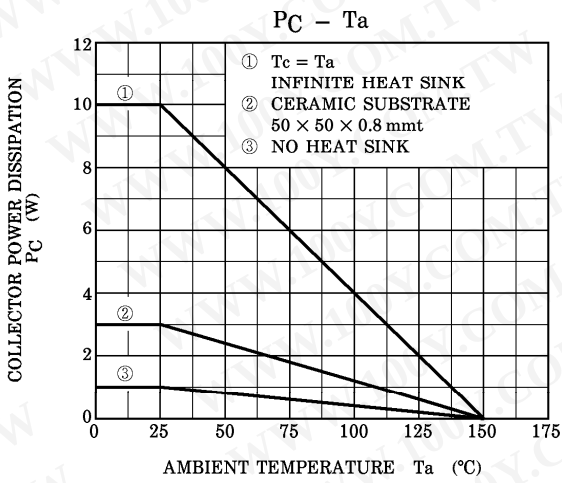
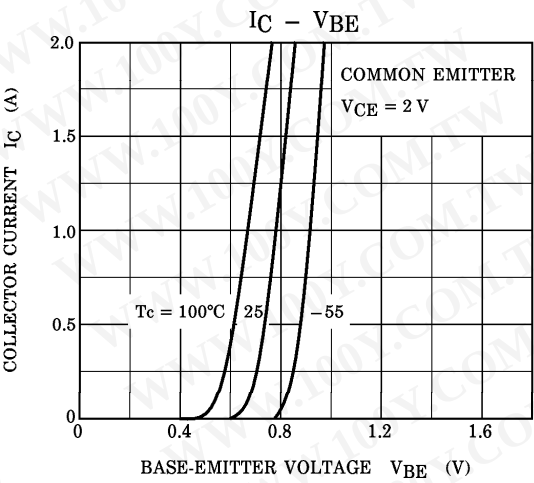
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = 50\text{ V}, I_E = 0$	—	—	1.0	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	1.0	μA
Collector-Emitter Breakdown Voltage		$V_{(BR) CEO}$	$I_C = 10\text{ mA}, I_B = 0$	50	—	—	V
DC Current Gain		$h_{FE(1)}$ (Note)	$V_{CE} = 2\text{ V}, I_C = 0.5\text{ A}$	70	—	240	
		$h_{FE(2)}$	$V_{CE} = 2\text{ V}, I_C = 1.5\text{ A}$	40	—	—	
Saturation Voltage	Collector-Emitter	$V_{CE(sat)}$	$I_C = 1\text{ A}, I_B = 0.05\text{ A}$	—	—	0.5	V
	Base-Emitter	$V_{BE(sat)}$	$I_C = 1\text{ A}, I_B = 0.05\text{ A}$	—	—	1.2	
Transition Frequency		f_T	$V_{CE} = 2\text{ V}, I_C = 0.5\text{ A}$	—	80	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0,$ $f = 1\text{ MHz}$	—	30	—	pF
Switching Time	Turn-on Time	t_{on}		—	0.1	—	μs
	Storage Time	t_{stg}		—	1.0	—	
	Fall Time	t_f		—	0.1	—	

Note : $h_{FE(1)}$ Classification O : 70~140, Y : 120~240





TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

2SC3076

Power Amplifier Applications

Power Switching Applications

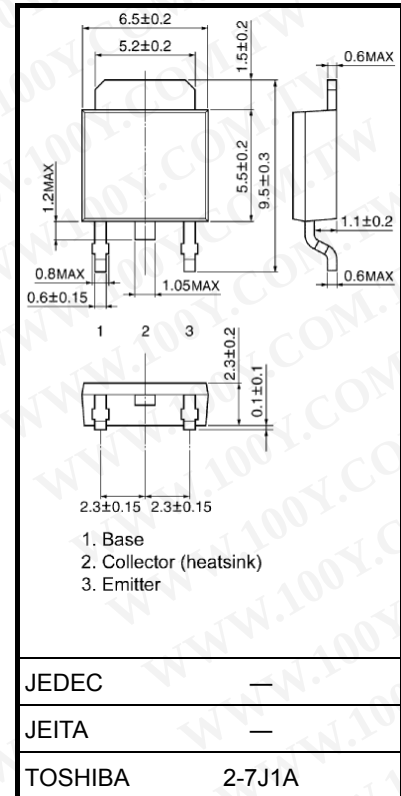
Unit: mm

- Low collector saturation voltage: $V_{CE(sat)} = 0.5 \text{ V (max)}$ ($I_C = 1 \text{ A}$)
- Excellent switching time: $t_{stg} = 1.0 \mu\text{s}$ (typ.)
- Complementary to 2SA1241

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

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	50	V
Collector-emitter voltage	V_{CEO}	50	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	2	A
Base current	I_B	1	A
Collector power dissipation	$T_a = 25^\circ\text{C}$	1.0	W
	$T_c = 25^\circ\text{C}$	10	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 150	$^\circ\text{C}$

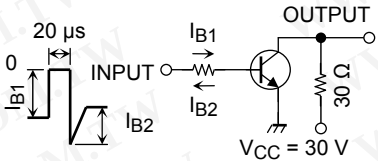
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings. Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).



Weight: 0.36 g (typ.)

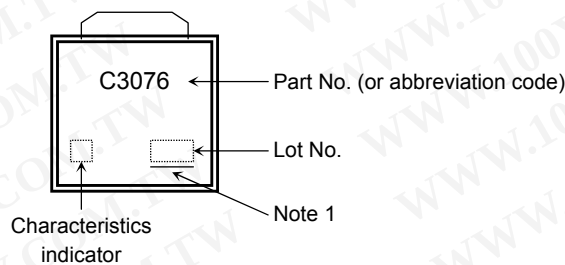
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Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	$V_{CB} = 50 \text{ V}, I_E = 0$	—	—	1.0	μA
Emitter cut-off current		I_{EBO}	$V_{EB} = 5 \text{ V}, I_C = 0$	—	—	1.0	μA
Collector-emitter breakdown voltage		$V_{(BR) \text{ CEO}}$	$I_C = 10 \text{ mA}, I_B = 0$	50	—	—	V
DC current gain	$h_{FE} (1)$ (Note)	$V_{CE} = 2 \text{ V}, I_C = 0.5 \text{ A}$	70	—	240		
	$h_{FE} (2)$	$V_{CE} = 2 \text{ V}, I_B = 1.5 \text{ A}$	40	—	—		
Collector-emitter saturation voltage		$V_{CE} (\text{sat})$	$I_C = 1 \text{ A}, I_B = 0.05 \text{ A}$	—	—	0.5	V
Base-emitter saturation voltage		$V_{BE} (\text{sat})$	$I_C = 1 \text{ A}, I_B = 0.05 \text{ A}$	—	—	1.2	V
Transition frequency		f_T	$V_{CE} = 2 \text{ V}, I_C = 0.5 \text{ A}$	—	80	—	MHz
Collector output capacitance		C_{ob}	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	—	30	—	pF
Switching time	Turn-on time	t_{on}		—	0.1	—	μs
	Storage time	t_{stg}		—	1.0	—	
	Fall time	t_f		$I_{B1} = -I_{B2} = 0.05 \text{ A},$ Duty cycle $\leq 1\%$	—	0.1	

Note: $h_{FE} (1)$ classification O: 70 to 140, Y: 120 to 240

Marking

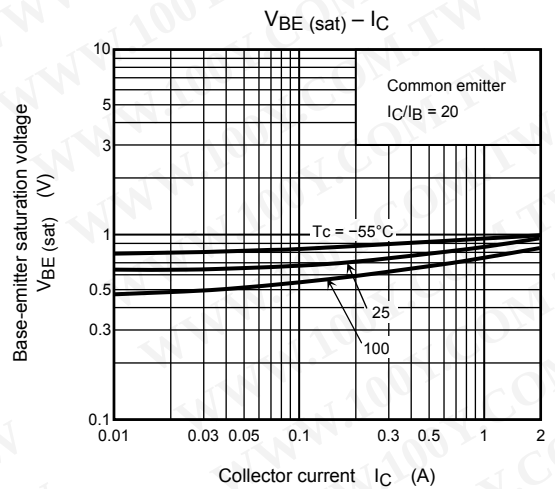
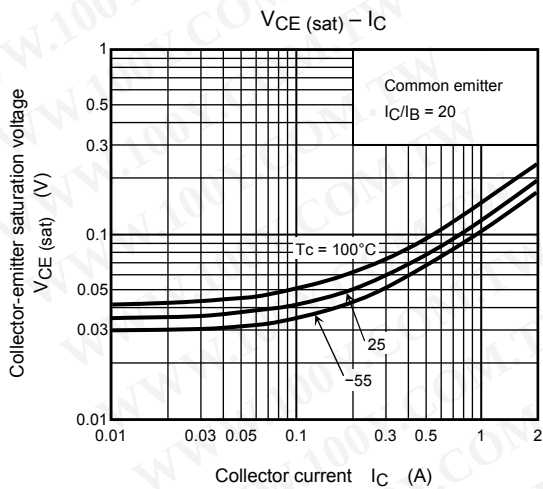
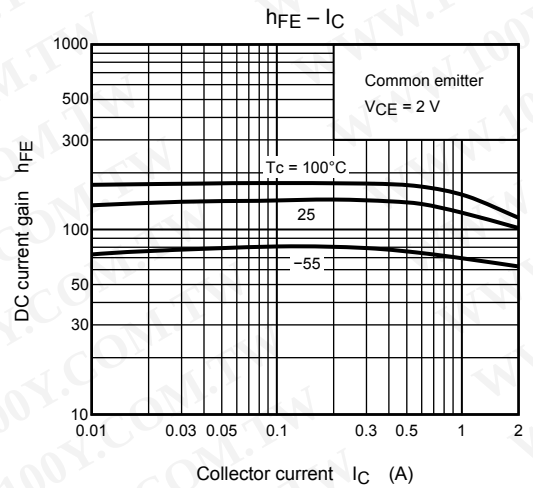
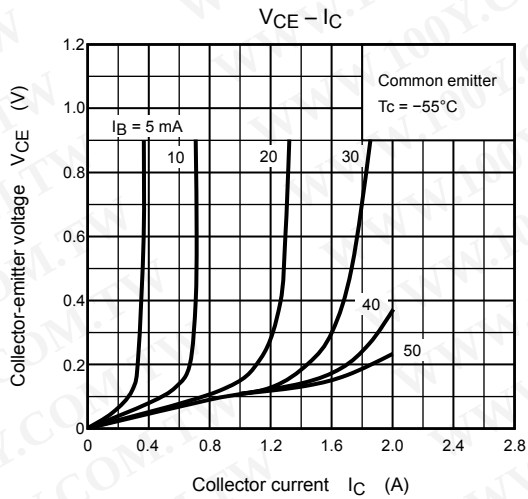
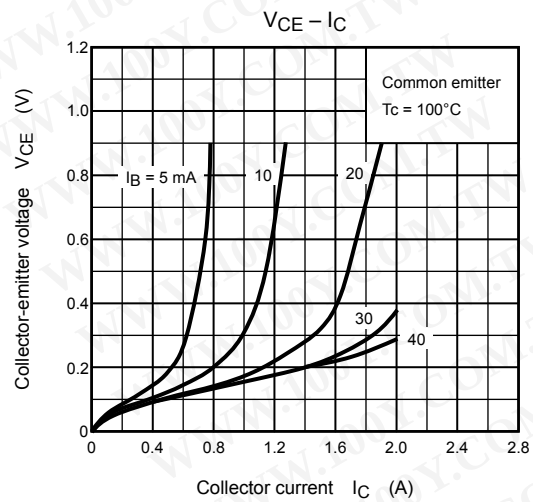
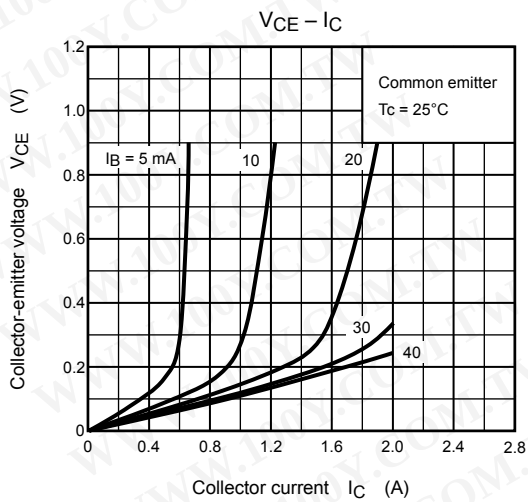


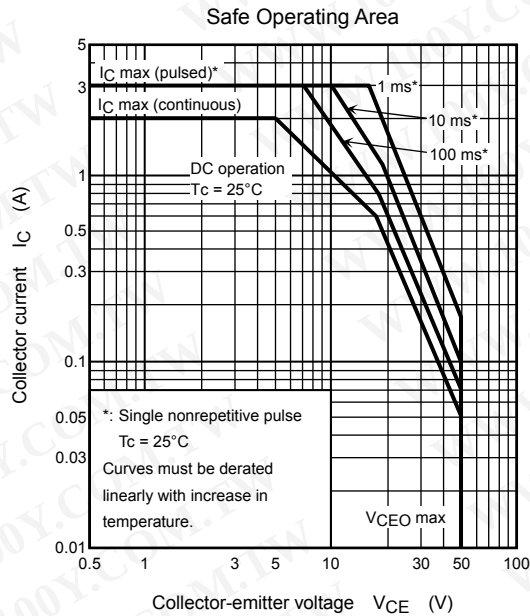
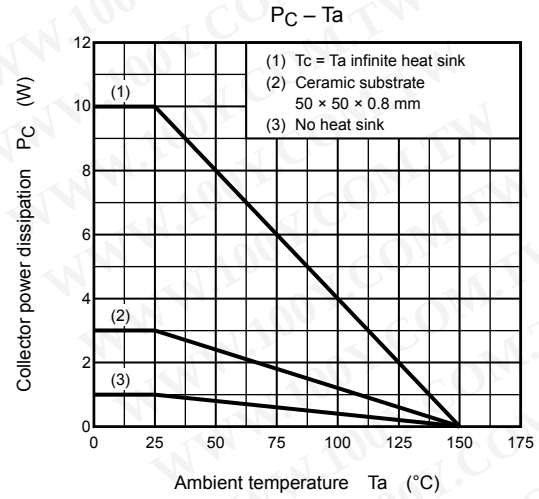
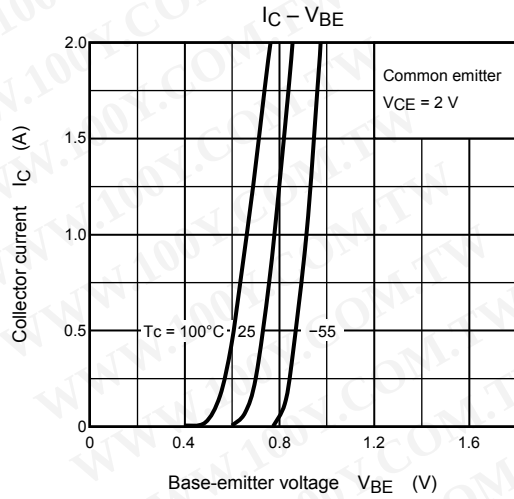
Note 1: A line under a Lot No. identifies the indication of product Labels.

Not underlined: $[[Pb]]/INCLUDES > MCV$

Underlined: $[[G]]/RoHS COMPATIBLE$ or $[[G]]/RoHS [[Pb]]$

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