

TPCP8501

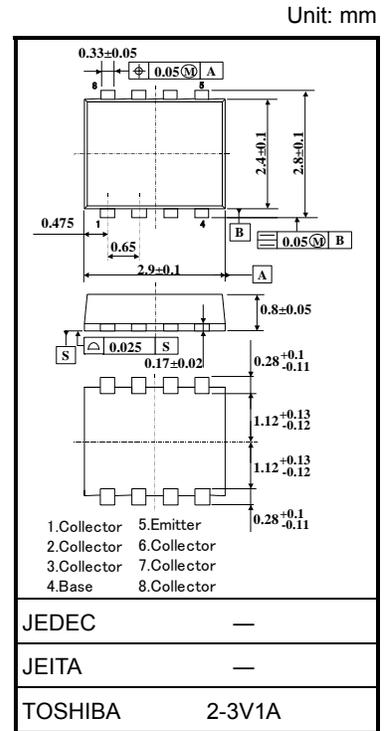
Switching Applications

DC-DC Converter Applications

- High DC current gain : $h_{FE} = 100$ to 300 ($I_C = 0.3$ A)
- Low collector-emitter saturation : $V_{CE(sat)} = 0.2$ V (max)
- High-speed switching : $t_f = 100$ ns (typ.)

Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	180	V
Collector-emitter voltage	V_{CEX}	150	V
	V_{CEO}	100	
Emitter-base voltage	V_{EBO}	7	V
Collector current	DC (Note 1)	I_C	A
	Pulse (Note 1)	I_{CP}	
Base current	I_B	0.2	A
Collector power dissipation (t = 10s)	t = 10s	P_c (Note 2)	3.3
	DC		1.3
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55 to 150	°C



Weight: 0.017 g (typ.)

Note 1: Please use devices on condition that the junction temperature is below 150°C.

Note 2: Mounted on FR4 board (glass epoxy, 1.6 mm thick, Cu area: 645 mm²)

Note 3: ● on lower left on the marking indicates Pin 1.

※ Weekly code: (Three digits)

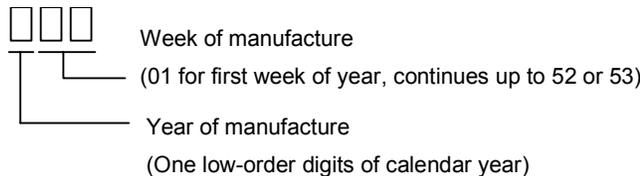


Figure 1. Circuit configuration (top view)

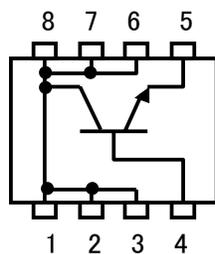
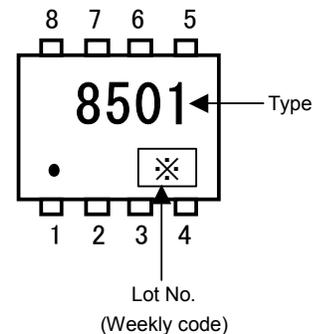


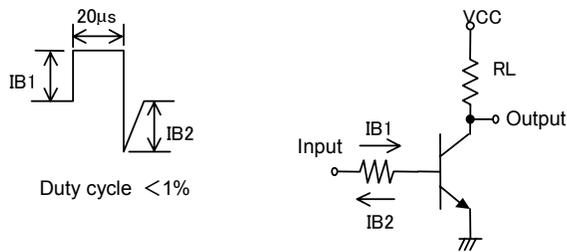
Figure 2. Marking (Note 3)

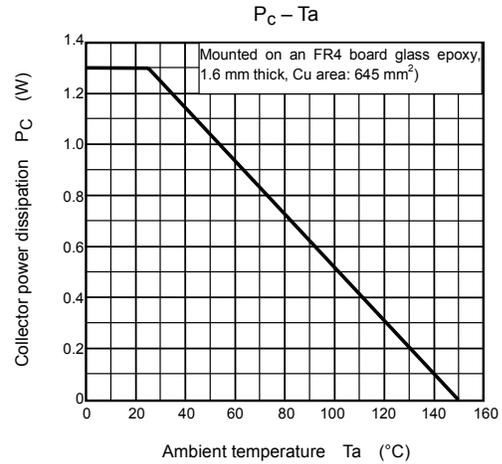
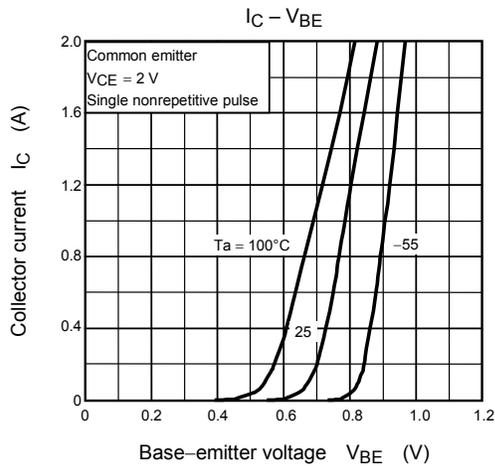
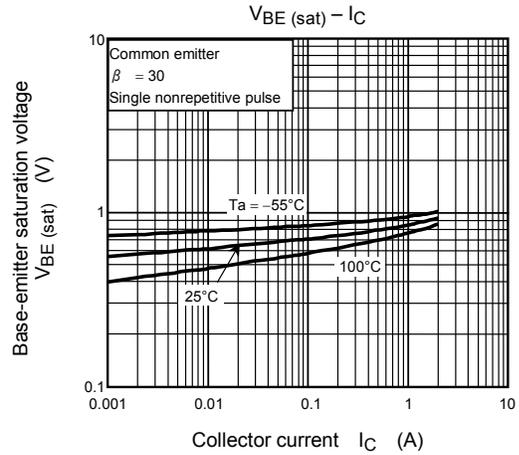
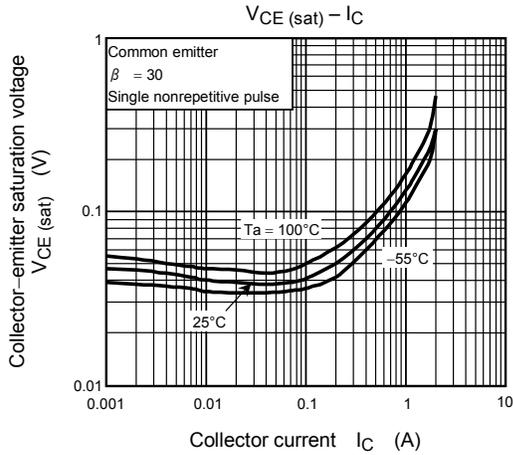
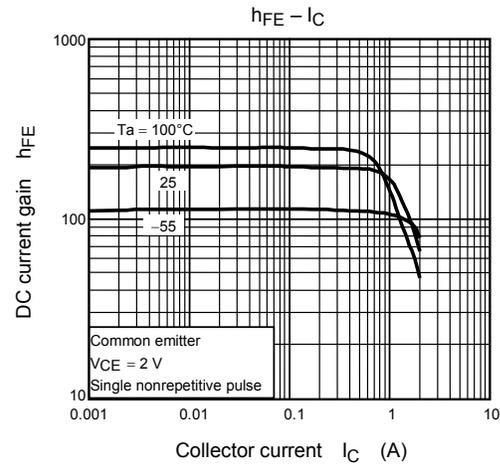
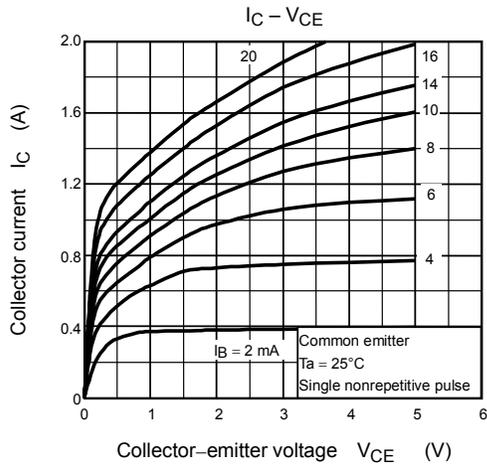


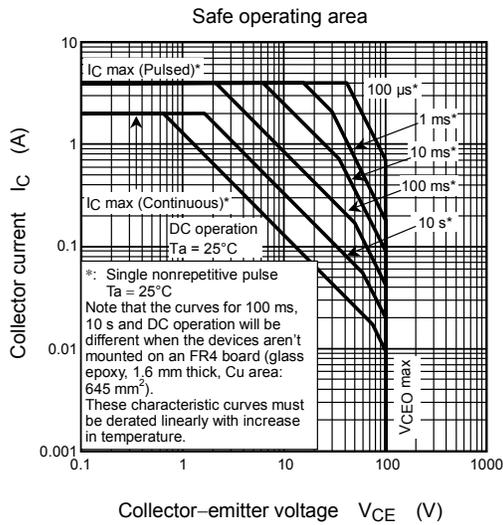
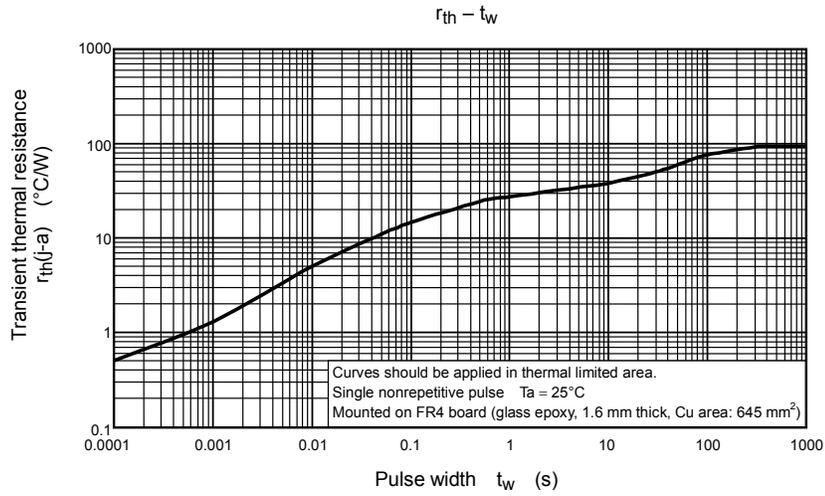
Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	$V_{CB} = 180\text{ V}, I_E = 0$	—	—	100	nA
Emitter cut-off current		I_{EBO}	$V_{EB} = 7\text{ V}, I_C = 0$	—	—	100	nA
Collector-base breakdown voltage		$V_{(BR) CBO}$	$I_C = 1\text{ mA}, I_B = 0$	180	—	—	V
Collector-emitter breakdown voltage		$V_{(BR) CEO}$	$I_C = 10\text{ mA}, I_B = 0$	100	—	—	V
DC current gain		$h_{FE} (1)$	$V_{CE} = 2\text{ V}, I_C = 0.3\text{ A}$	100	—	300	
		$h_{FE} (2)$	$V_{CE} = 2\text{ V}, I_C = 1.0\text{ A}$	80	—	—	
Collector-emitter saturation voltage		$V_{CE (sat)}$	$I_C = 1\text{ A}, I_B = 33\text{ mA}$	—	—	0.2	V
Base-emitter saturation voltage		$V_{BE (sat)}$	$I_C = 1\text{ A}, I_B = 33\text{ mA}$	—	—	1.1	V
Collector output capacitance		C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	23	—	pF
Switching time	Rise time	t_r	See Figure 3 circuit diagram $V_{CC} \approx 50\text{ V}, R_L = 50\ \Omega$ $I_{B1} = -I_{B2} = 33\text{ mA}$	—	65	—	ns
	Storage time	t_{stg}		—	1.4	—	$\mu\text{ s}$
	Fall time	t_f		—	100	—	ns

Figure 3. Switching Time Test Circuit & Timing Chart







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