

# TPCP8601

High-Speed Switching Applications  
 DC-DC Converter Applications  
 Strobe Flash Applications

- High DC current gain:  $h_{FE} = 200$  to  $500$  ( $I_C = -0.6$  A)
- Low collector-emitter saturation:  $V_{CE(sat)} = -0.19$  V (max)
- High-speed switching:  $t_f = 35$  ns (typ.)

### Maximum Ratings (Ta = 25°C)

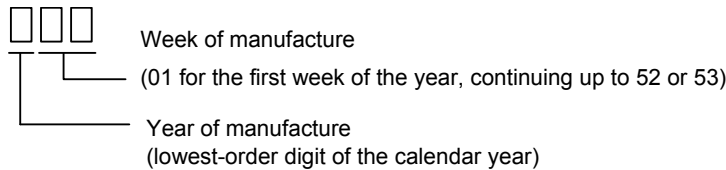
Characteristic	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	-20	V
Collector-emitter voltage	$V_{CEO}$	-20	V
Emitter-base voltage	$V_{EBO}$	-7	V
Collector current	DC (Note 1)	$I_C$	-4.0
	Pulse (Note 1)	$I_{CP}$	-7.0
Base current	$I_B$	-0.5	A
Collector power dissipation (t = 10s)	t = 10s	$P_c$ (Note 2)	3.3
	DC		1.3
Junction temperature	$T_j$	150	°C
Storage temperature range	$T_{stg}$	-55 to 150	°C

Note 1: Ensure that the junction temperature does not exceed 150°C during use of this device.

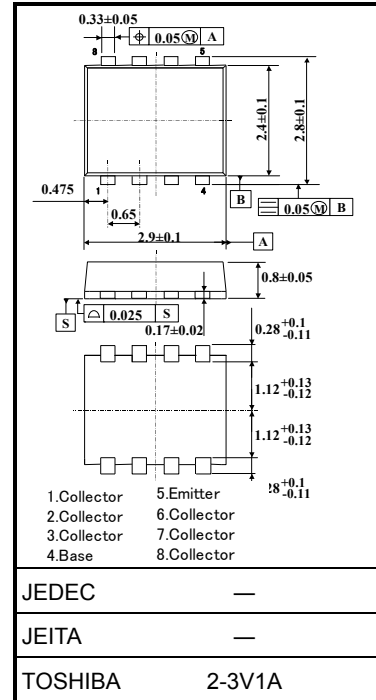
Note 2: Mounted on an FR4 board (glass epoxy, 1.6 mm thick, Cu area: 645 mm<sup>2</sup>)

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

\* Weekly code (three digits):

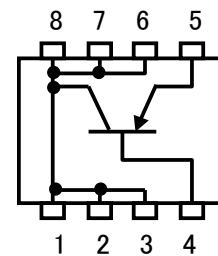


Unit: mm

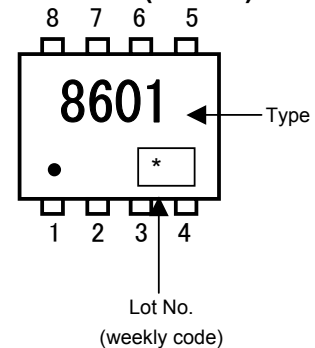


Weight: 0.017 g (typ.)

**Figure 1.**  
**Circuit Configuration**  
**(Top View)**



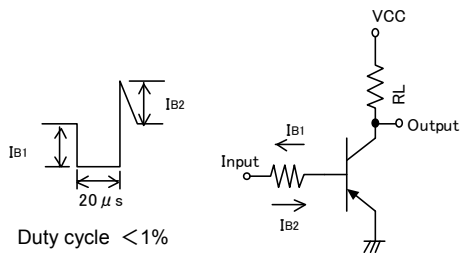
**Figure 2. Marking**  
**(Note 3)**

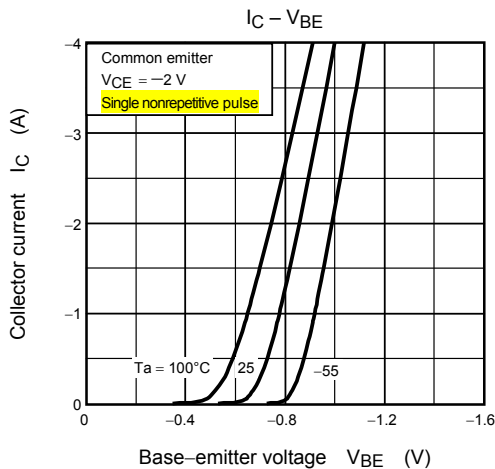
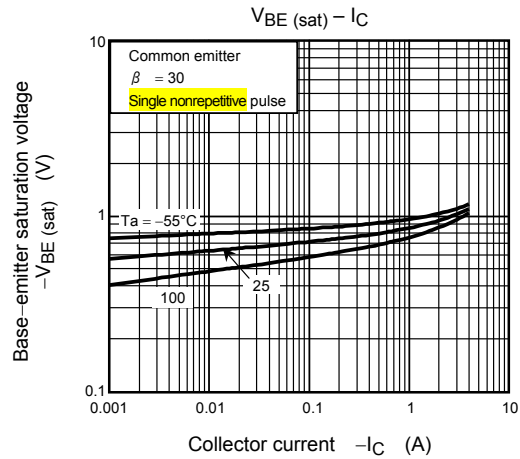
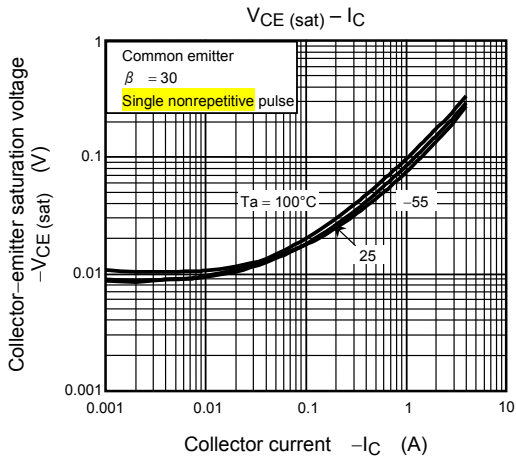
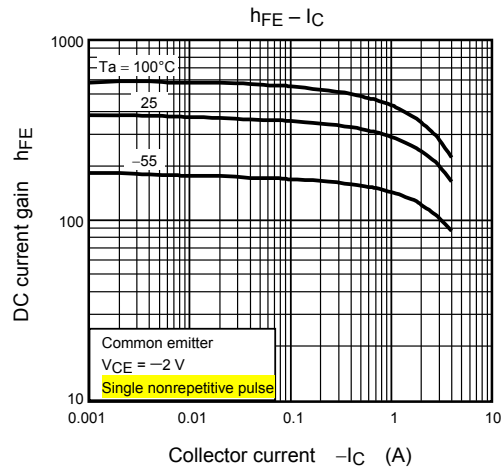
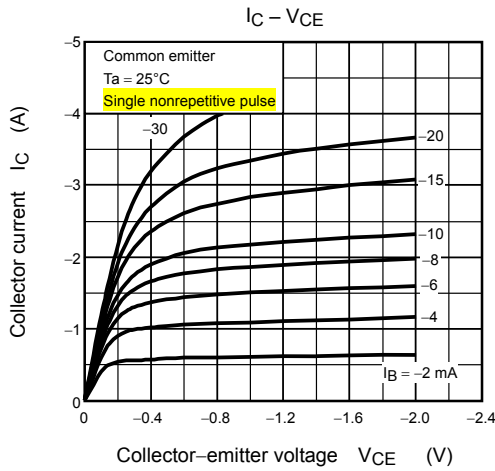


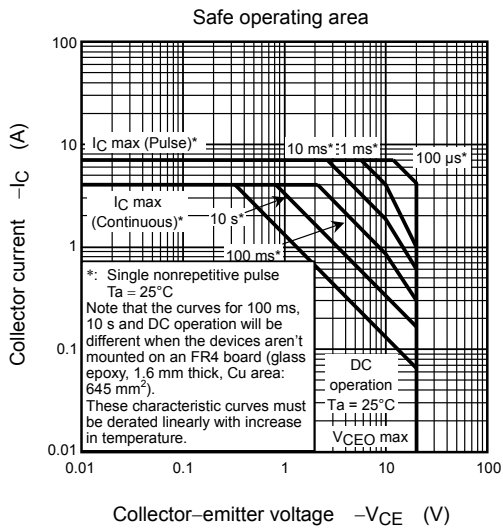
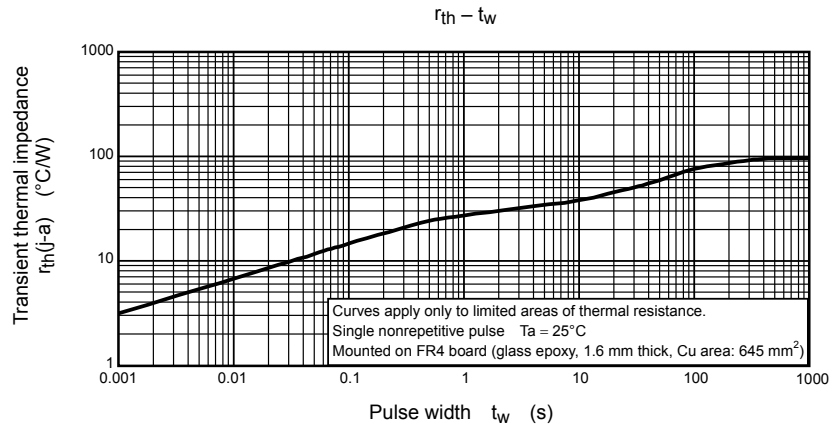
**Electrical Characteristics (Ta = 25°C)**

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = -20\text{ V}, I_E = 0$	—	—	-100	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -7\text{ V}, I_C = 0$	—	—	-100	nA
Collector-base breakdown voltage	$V_{(BR) CBO}$	$I_C = -1\text{ mA}, I_B = 0$	-20	—	—	V
Collector-emitter breakdown voltage	$V_{(BR) CEO}$	$I_C = -10\text{ mA}, I_B = 0$	-20	—	—	V
DC current gain	$h_{FE} (1)$	$V_{CE} = -2\text{ V}, I_C = -0.6\text{ A}$	200	—	500	
	$h_{FE} (2)$	$V_{CE} = -2\text{ V}, I_C = -2.0\text{ A}$	100	—	—	
Collector-emitter saturation voltage	$V_{CE (sat)}$	$I_C = -2\text{ A}, I_B = -67\text{ mA}$	—	—	-0.19	V
Base-emitter saturation voltage	$V_{BE (sat)}$	$I_C = -2\text{ A}, I_B = -67\text{ mA}$	—	—	-1.1	V
Switching time	Rise time	$t_r$	—	72	—	ns
	Storage time	$t_{stg}$	—	170	—	
	Fall time	$t_f$	—	35	—	

**Figure 3. Switching Time Test Circuit & Timing Chart**







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