Unit: mm

TOSHIBA Transistor Silicon PNP Epitaxial Type

2SA2097

High-Speed Swtching Applications DC-DC Converter Applications

- High DC current gain: $h_{FE} = 200$ to 500 ($I_{C} = -0.5$ A)
- Low collector-emitter saturation: $V_{CE (sat)} = -0.27 \text{ V (max)}$
- High-speed switching: $t_f = 55$ ns (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit	
Collector-base voltage		V_{CBO}	-50	V	
Collector-emitter voltage		V _{CEO}	-50	V	
Emitter-base voltage		V _{EBO}	-7	V	
Collector current	DC	Ic	-5	Α	
	Pulse	I _{CP}	-10		
Base current		ΙΒ	-0.5	Α	
Collector power dissipation	Ta = 25°C	Pc	1	W	
	Tc = 25°C	FC	20		
Junction temperature		Tj	150	°C	
Storage temperature range		T _{stg}	-55 to 150	°C	

0.8MAX
0.6±0.15

1 2 3 00 0.6MAX
0.6±0.15

1 Base
2. Collector (heatsink)
3. Emitter

JEDEC

JEITA

TOSHIBA
2-7J1A

Weight: 0.36 g (typ.)

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).

Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current		I _{CBO}	$V_{CB} = -50 \text{ V}, I_E = 0$	_	_	-100	nA
Emitter cut-off current		I _{EBO}	$V_{EB} = -7 \text{ V}, I_{C} = 0$	_	_	-100	nA
Collector-emitter breakdown voltage		V (BR) CEO	$I_C = -10 \text{ mA}, I_B = 0$	-50	_	_	V
DC current gain		h _{FE} (1)	$V_{CE} = -2 \text{ V}, I_{C} = -0.5 \text{ A}$	200	_	500	
		h _{FE} (2)	V _{CE} = -2 V, I _C = -1.6 A	100	_	_	
Collector-emitter saturation voltage		V _{CE} (sat)	$I_C = -1.6 \text{ A}, I_B = -53 \text{ mA}$	_	_	-0.27	V
Base-emitter saturation voltage		V _{BE} (sat)	$I_C = -1.6 \text{ A}, I_B = -53 \text{ mA}$	_	_	-1.10	V
Switching time	Rise time	t _r	See Figure 1. $V_{CC} \simeq -24$ V, $R_L = -15 \Omega$ $I_{B1} = -I_{B2} = -53$ mA	_	63	_	
	Storage time	t _{stg}		_	280	_	ns
	Fall time	t _f		_	55	_	

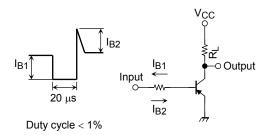
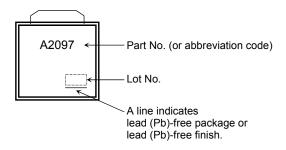
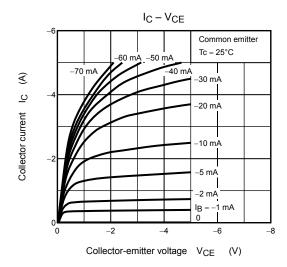
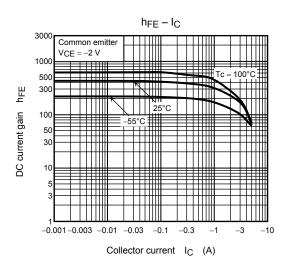


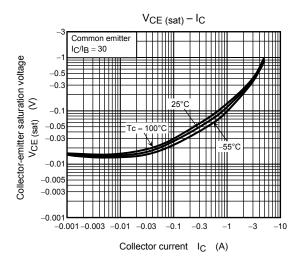
Figure 1 Switching Time Test Circuit & Timing Chart

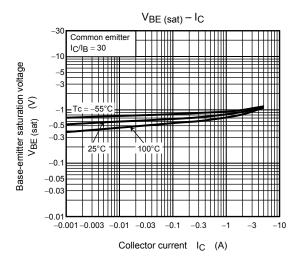
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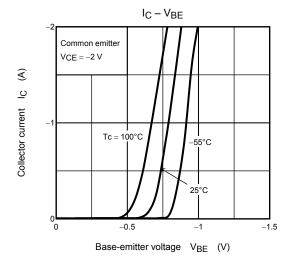


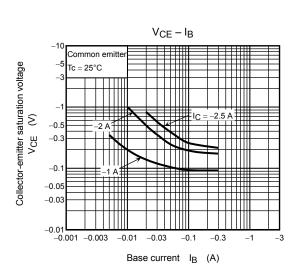




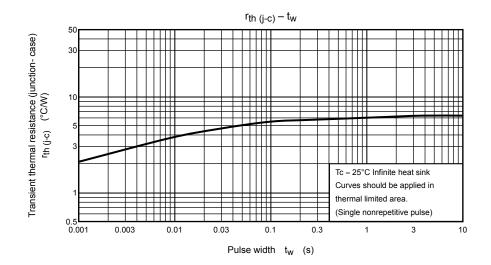


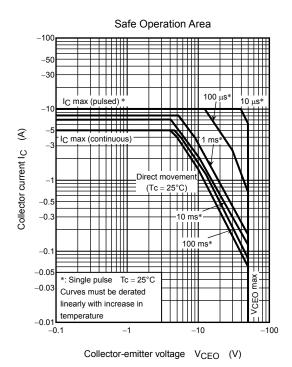






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