TOSHIBA Transistor Silicon NPN Epitaxial Type

2SC5819

High-Speed Switching Applications DC-DC Converter Applications

- High DC current gain: $h_{FE} = 400$ to 1000 ($I_{C} = 0.15$ A)
- Low collector-emitter saturation voltage: V_{CE} (sat) = 0.12 V (max)
- High-speed switching: $t_f = 45 \text{ ns (typ.)}$

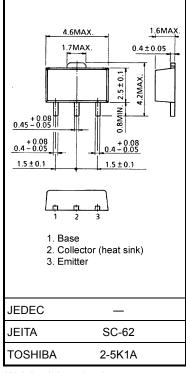
Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit	
Collector-base voltage		V_{CBO}	40	V	
Collector-emitter voltage		V _{CEX}	30	V	
Collector-emitter voltage		V _{CEO}	20	V	
Emitter-base voltage		V _{EBO}	7	V	
Collector current	DC	IC	1.5	Α	
	Pulse	I _{CP}	2.5		
Base current		ΙΒ	150	mA	
Collector power dissipation	t = 10 s	PC	2.0	W	
	DC	(Note 1)	1.0		
Junction temperature		Tj	150	°C	
Storage temperature range		T _{stg}	–55 to 150	°C	

Note 1: Mounted on an FR4 board (glass epoxy, 1.6 mm thick, Cu area: 645 mm²)

Industrial Applications

Unit: mm



Weight: 0.05 g (typ.)

Electrical Characteristics (Ta = 25°C)

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Characteristics		Symbol	Test Condition	Min	Тур.	Max	Unit	
Collector cut-off current		I _{CBO}	$V_{CB} = 40 \text{ V}, I_{E} = 0$	_	_	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}	$I_C = 10 \text{ mA}, I_B = 0$	20	_	_	V	
DC current gain		h _{FE} (1)	V _{CE} = 2 V, I _C = 0.15 A	400	_	1000		
		h _{FE} (2)	V _{CE} = 2 V, I _C = 0.5 A	200	_	_		
Collector-emitter saturation voltage		V _{CE (sat)}	$I_C = 0.5 \text{ A}, I_B = 10 \text{ mA}$	_	_	0.12	V	
Base-emitter saturation voltage		V _{BE (sat)}	$I_C = 0.5 \text{ A}, I_B = 10 \text{ mA}$	_	_	1.10	V	
Collector output capacitance		C _{ob}	V _{CB} = 10 V, I _E = 0, f = 1 MHz	_	18	_	pF	
Switching time	Rise time	t _r	See Figure 1.	_	43	_		
	Storage time	t _{stg}	$V_{CC} \simeq 12 \text{ V}, R_L = 24 \Omega$	_	295	_	ns	
	Fall time	t _f	$I_{B1} = -I_{B2} = 17 \text{ mA}$	_	45	_		

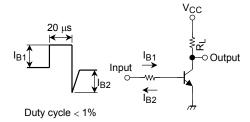
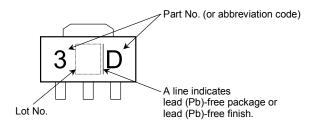
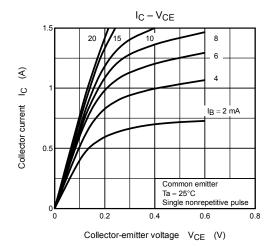


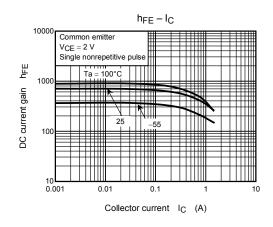
Figure 1 Switching Time Test Circuit & Timing Chart

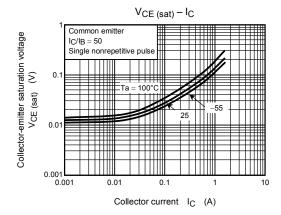
Marking

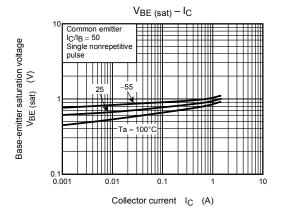


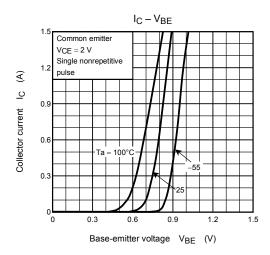
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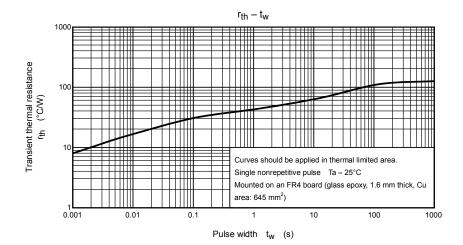


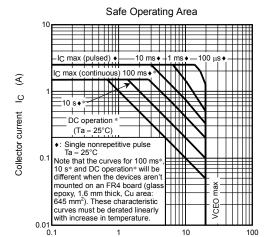






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Collector-emitter voltage V_{CE} (V)

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Handbook" etc..

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