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Silicon NPN Triple Diffused

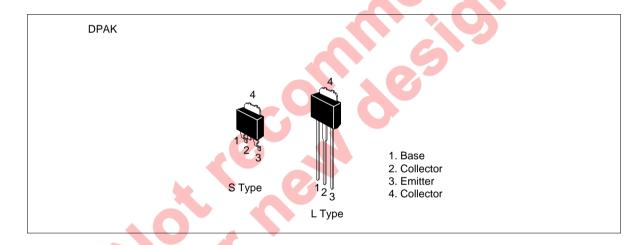


ADE-208-893 (Z) 1st. Edition September 2000

Application

High speed and high voltage switching

Outline



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

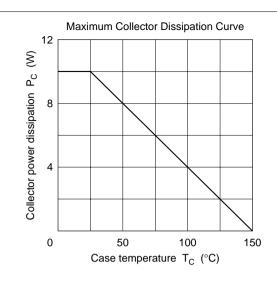
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	500	V
Collector to emitter voltage	V_{CEO}	400	V
Emitter to base voltage	V_{EBO}	10	V
Collector current	I _c	0.5	A
Collector peak current	I _{C(peak)}	1.0	A
Collector power dissipation	P _c	0.75	W
	P _c *1	10	
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	°C

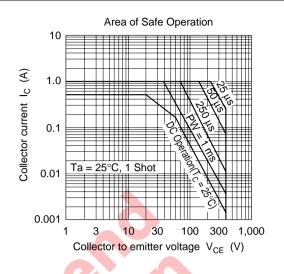
Note: 1. Value at $T_c = 25^{\circ}C$.

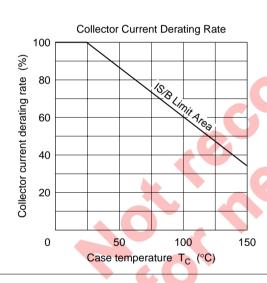
Electrical Characteristics ($Ta = 25^{\circ}C$)

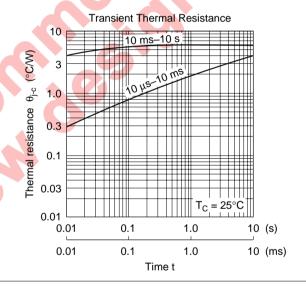
Item	Symbol	Min	Тур	Max	Unit	Test conditions
Collector to emitter sustain voltage	$V_{\text{CEO(sus)}}$	400		7	V	$I_{\rm C} = 0.1 \; {\rm A}, \; {\rm R}_{\rm BE} = \infty$ L = 100 mH
Emitter to base breakdown voltage	$V_{(BR)EBO}$	10	_	U	V	$I_{\rm E} = 10$ mA, $I_{\rm C} = 0$
Collector cutoff current	I _{CBO}	_		20	μΑ	$V_{CB} = 400 \text{ V}, I_{E} = 0$
	I _{CEO}	-		50		$V_{CE} = 350 \text{ V}, R_{BE} = \infty$
DC current transfer ratio	h _{FE1}	12	<u> </u>	_		$V_{CE} = 5 \text{ V}, I_{C} = 0.25 \text{ A}^{*1}$
	h _{FE2}	5	_	_	_	$V_{CE} = 5 \text{ V}, I_{C} = 0.5 \text{ A}^{*1}$
Collector to emitter saturation voltage	$V_{\text{CE(sat)}}$		_	1.0	V	$I_{\rm C} = 0.25 \text{ A}, I_{\rm B} = 0.05 \text{ A}^{*1}$
Base to emitter saturation voltage	V _{BE(sat)}	_	_	1.5	V	$I_{\rm C} = 0.25 \text{ A}, I_{\rm B} = 0.05 \text{ A}^{*1}$
Turn on time	t _{on}	_	_	1.0	μs	$I_C = 0.5 \text{ A}, I_{B1} = -I_{B2} = 0.1 \text{ A},$
Storage time	t _{stg}	_	_	2.0	μs	
Fall time	t _f	_	_	1.0	μs	_

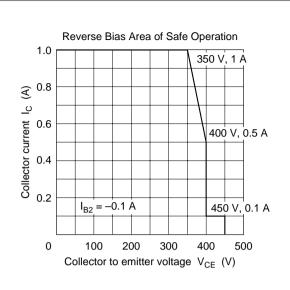
Note: 1. Pulse test.

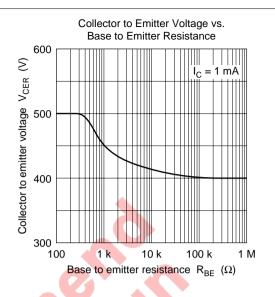


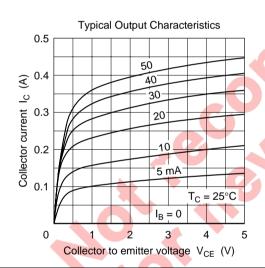


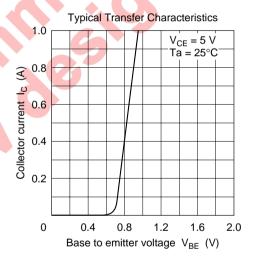


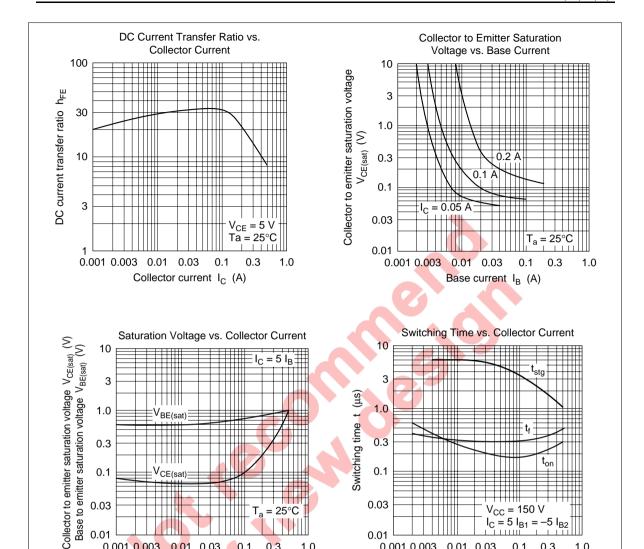












0.01

0.001 0.003

0.01 0.03

Collector current I_C (A)

0.1

0.3

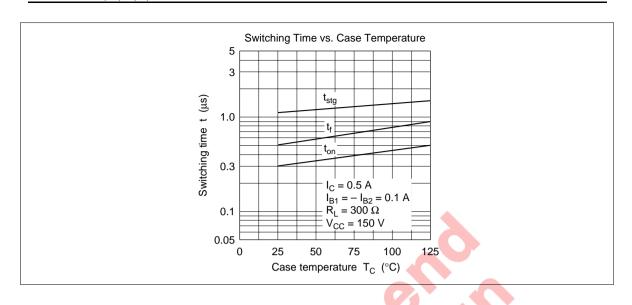
1.0

0.01

0.001 0.003

0.01 0.03

Collector current I_C (A)



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