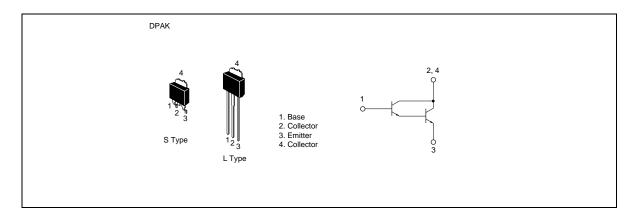
## Silicon NPN Epitaxial

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#### **Application**

High gain amplifier and medium speed switching

#### Outline



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

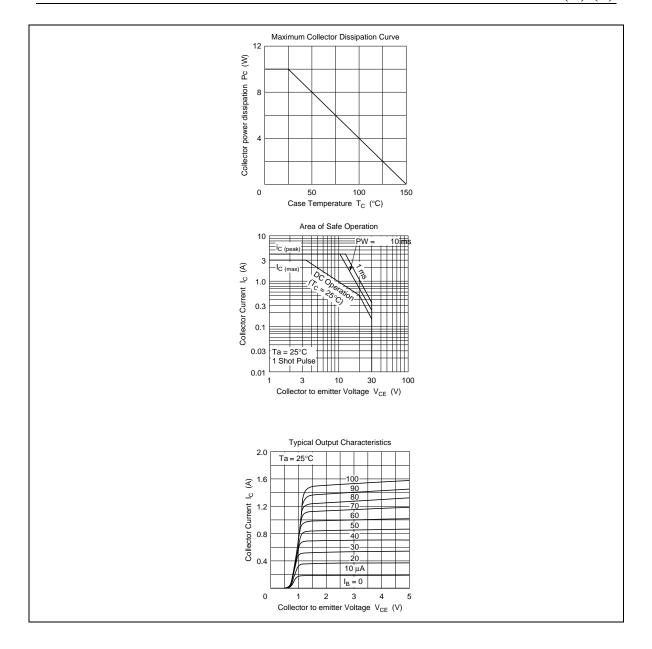
Item	Symbol	Ratings	Unit
Collector to base voltage	V <sub>CBO</sub>	30	V
Collector to emitter voltage	V <sub>CEO</sub>	30	V
Emitter to base voltage	$V_{\scriptscriptstyle{EBO}}$	7	V
Collector current	I <sub>c</sub>	3	A
Collector peak current	I <sub>C (peak)</sub>	4	A
Collector power dissipation	P <sub>c</sub> *¹	10	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	°C

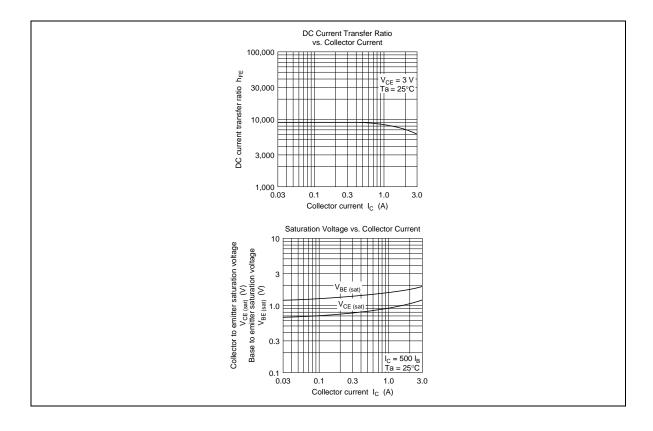
Note: 1. Value at  $T_c = 25$ °C.

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

Item	Symbol	Min	Тур	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	_	_	V	$I_c = 0.1 \text{ mA}, I_E = 0$
Collector to emitter breakdown voltage	$V_{\scriptscriptstyle (BR)CEO}$	30	_	_	V	$I_c = 1 \text{ mA}, R_{BE} = \_$
Emitter to base breakdown voltage	$V_{\text{(BR)EBO}}$	7	_	_	V	$I_{\rm E} = 0.1  \text{mA},  I_{\rm C} = 0$
Collector cutoff current	I <sub>CEO</sub>	_	_	20	μA	V <sub>CB</sub> = 24 V, R <sub>BE</sub> = _
DC current transfer ratio	h <sub>FE</sub>	2000	_	50000		$V_{CE} = 3 \text{ V}, I_{C} = 1.5 \text{ A}^{*1}$
Collector to emitter saturation voltage	V <sub>CE (sat)</sub>	_	_	1.5	V	$I_{\rm c} = 1.5 \text{ A}, I_{\rm B} = 3 \text{ mA*}^{1}$
	V <sub>CE (sat)</sub>	_		2.0	_	$I_{\rm C} = 3 \text{ A}, I_{\rm B} = 30 \text{ mA}^{*1}$
Base to emitter saturation voltage	V <sub>BE (sat)</sub>	_	_	2.0	V	$I_{\rm c} = 1.5 \text{ A}, I_{\rm B} = 3 \text{ mA*}^{1}$
	V <sub>BE (sat)</sub>	_		3.5	_	$I_{\rm c} = 3 \text{ A}, I_{\rm B} = 30 \text{ mA}^{*1}$
Turn on time	t <sub>on</sub>	_	0.4	_	μs	I <sub>C</sub> = 1.5 A,
Turn off time	t <sub>off</sub>		1.2		μs	$I_{B1} = -I_{B2} = 3 \text{ mA},$
Storage time	t <sub>stg</sub>	_	0.8	_	μs	$V_{cc} = 30 \text{ V}$

Note: 1. Pulse test.





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