2SC4501Ⓛ/Ⓢ

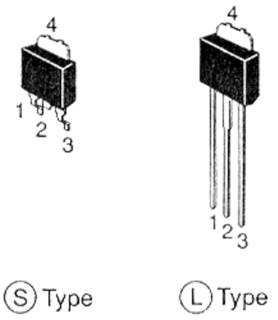
Silicon NPN Epitaxial
High Gain Amplifier and Medium Speed Switching

Absolute Maximum Ratings (Ta = 25°C)

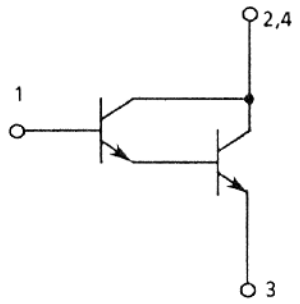
Item	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	30	V
Collector to emitter voltage	V_{CEO}	30	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	3	A
Collector peak current	$i_{C(peak)}$	4	A
Collector power dissipation	P_C[1]	10	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. Value at $T_C = 25°C$.

DPAK



1. Base
2. Collector
3. Emitter
4. Collector



Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test condition
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	$I_C = 0.1$ mA, $I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	30	—	—	V	$I_C = 1$ mA, $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	$I_E = 0.1$ mA, $I_C = 0$
Collector cutoff current	I_{CEO}	—	—	20	μA	$V_{CB} = 24$ V, $R_{BE} = \infty$
DC current transfer ratio	h_{FE}	2000	—	50000		$V_{CE} = 3$ V, $I_C = 1.5$ A[1]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.5	V	$I_C = 1.5$ A, $I_B = 3$ mA[1]
	$V_{CE(sat)}$	—	—	2.0		$I_C = 3$ A, $I_B = 30$ mA[1]
Base to emitter saturation voltage	$V_{BE(sat)}$	—	—	2.0	V	$I_C = 1.5$ A, $I_B = 3$ mA[1]
	$V_{BE(sat)}$	—	—	3.5		$I_C = 3$ A, $I_B = 30$ mA[1]

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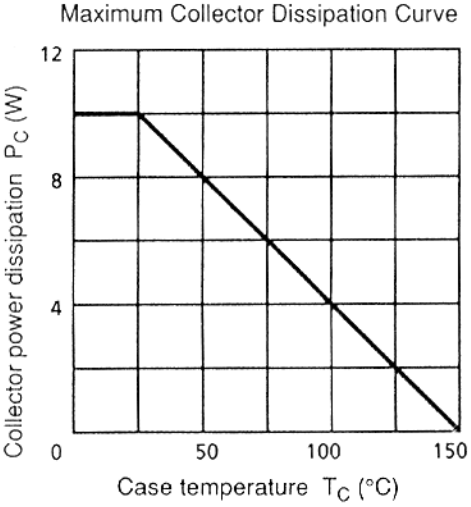
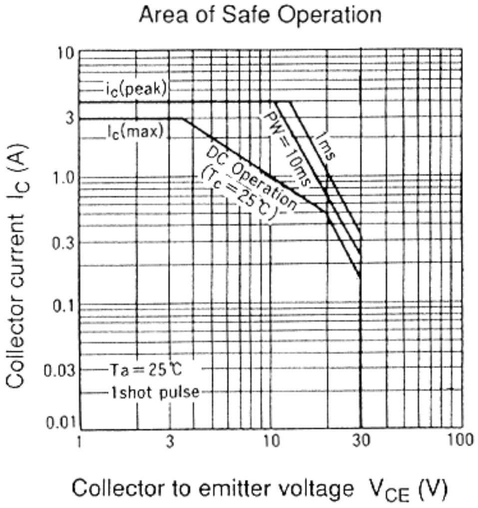
Electrical Characteristics (Ta = 25°C) (cont)

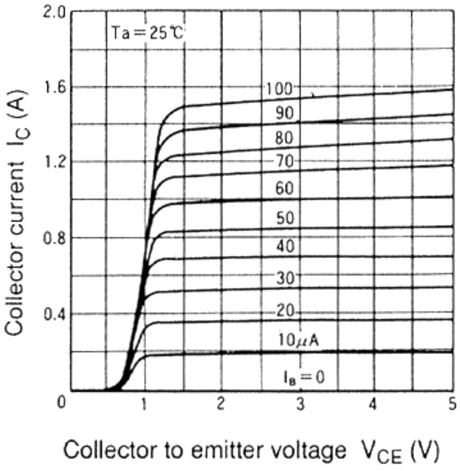
Item	Symbol	Min	Typ	Max	Unit	Test condition
Turn on time	ton	—	0.4	—	µs	I_C = 1.5 A, I_{B1} = −I_{B2} = 3 mA, V_{CC} = 30 V
Turn off time	toff	—	1.2	—	µs	
Storage time	tstg	—	0.8	—	µs	

Note: 1. Pulse Test.

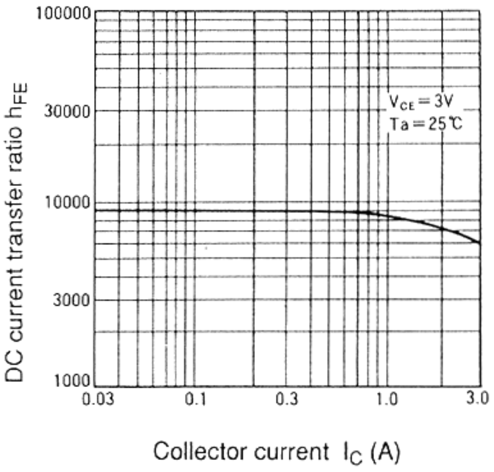

Maximum Collector Dissipation Curve


Area of Safe Operation

Typical Output Characteristics



DC Current Transfer Ratio vs. Collector Current



Saturation Voltage vs. Collector Current