

13003G

NPN Silicon Epitaxial Planar Transistor

for high voltage and high speed switching applications



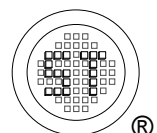
1. Emitter 2. Collector 3. Base
TO-92 Plastic Package

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

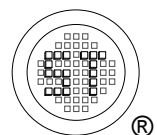
Parameter	Symbol	Value	Unit
Collector Emitter Voltage	V_{CES}	700	V
Collector Emitter Voltage	V_{CEO}	450	V
Emitter Base Voltage	V_{EBO}	9	V
Collector Current ($f \geq 100$ Hz, Duty cycle ≤ 50 %)	I_C	1.5	A
Collector Current ($t_p < 5$ ms)	I_{CP}	3	A
Total Power Dissipation	P_{tot}	1.5	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 65 to + 150	$^\circ\text{C}$

Characteristics at $T_a = 25^\circ\text{C}$

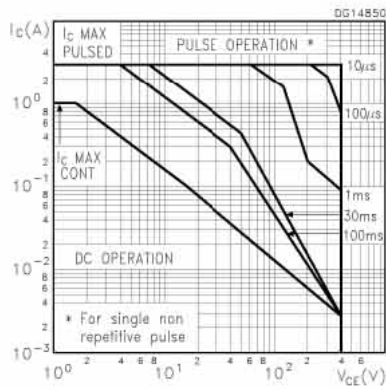
Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $V_{CE} = 2$ V, $I_C = 0.5$ A at $V_{CE} = 2$ V, $I_C = 1$ A	h_{FE} h_{FE}	8 5	35 25	- -
Collector Base Cutoff Current at $V_{CB} = 700$ V	I_{CBO}	-	100	μA
Collector Emitter Cutoff Current at $V_{CE} = 700$ V	I_{CES}	-	1	mA
Emitter Base Cutoff Current at $V_{EB} = 7$ V	I_{EBO}	-	5	μA
Collector Base Breakdown Voltage at $I_C = 1$ mA	$V_{(BR)CBO}$	700	-	V
Collector Emitter Breakdown Voltage at $I_C = 10$ mA	$V_{(BR)CEO}$	450	-	V
Emitter Base Breakdown Voltage at $I_E = 1$ mA	$V_{(BR)EBO}$	9	18	V
Collector Emitter Saturation Voltage at $I_C = 0.5$ A, $I_B = 0.1$ A at $I_C = 1$ A, $I_B = 0.25$ A at $I_C = 1.5$ A, $I_B = 0.5$ A	$V_{CE(sat)}$	- - -	0.5 1 1.5	V
Base Emitter Saturation Voltage at $I_C = 0.5$ A, $I_B = 0.1$ A at $I_C = 1$ A, $I_B = 0.25$ A	$V_{BE(sat)}$	- -	1 1.2	V
Rise Time at $V_{CC} = 125$ V, $I_C = 1$ A, $I_B = -I_{B2} = 0.2$ A, $t_p = 25$ μs	t_r	-	0.8	μs
Storage Time at $V_{CC} = 125$ V, $I_C = 1$ A, $I_B = -I_{B2} = 0.2$ A, $t_p = 25$ μs	t_s	-	4	μs



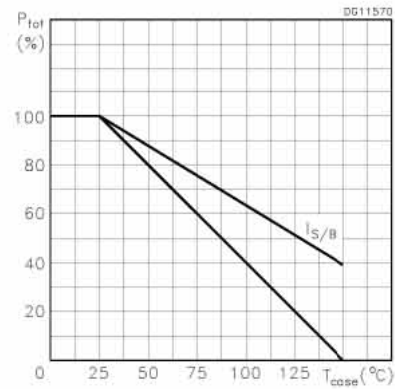
Fall Time at $V_{CC} = 125\text{ V}$, $I_C = 1\text{ A}$, $I_B = -I_{B2} = 0.2\text{ A}$, $t_p = 25\text{ }\mu\text{s}$	t_f	-	0.7	μs
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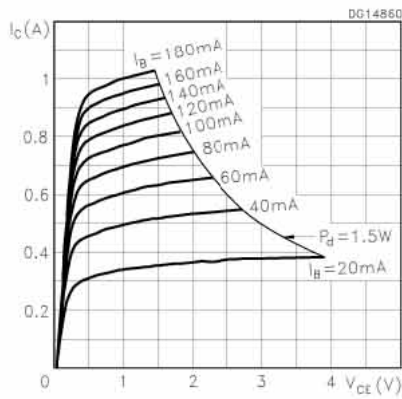
Safe Operating Area



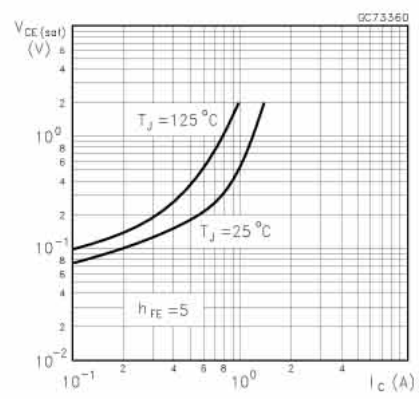
Derating Curve



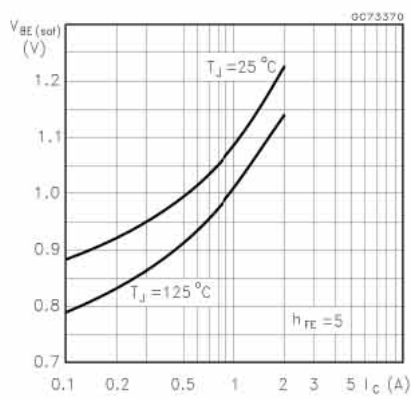
Output Characteristics



Collector-Emitter Saturation Voltage



Base-Emitter Saturation Voltage



DC Current Gain

