

NPN SILICON POWER TRANSISTORS

...designed for use in B/W TV horizontal output applications.

FEATURES:

* Collector-Emitter Sustaining Voltage-

$V_{CE(sus)} = 70 \text{ V (Min)-2SC681}$
 $= 80 \text{ V (Min)-2SC681ARD}$
 $= 80 \text{ V (Min)-2SC681AYL}$

* Low Collector-Emitter Saturation Voltage

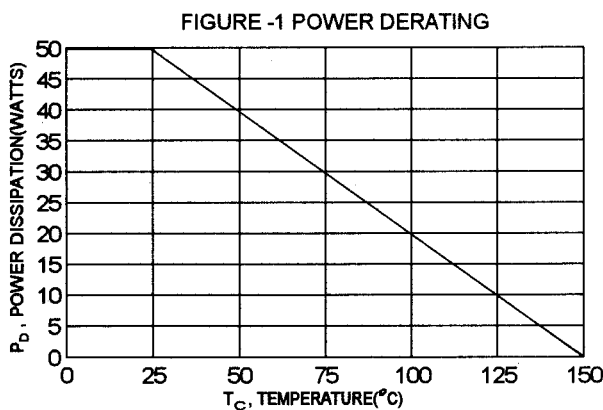
$V_{CE(sat)} = 2.0 \text{ V (Max) @ } I_C = 5.0 \text{ A, } I_B = 0.6 \text{ A}$

MAXIMUM RATINGS

Characteristic	Symbol	2SC			Unit
		681	681ARD	681AYL	
Collector-Emitter Voltage	V_{CEO}	70	80	80	V
Collector-Base Voltage	V_{CBO}	200	250	300	V
Emitter-Base Voltage	V_{EBO}	5.0			V
Collector Current-Continuous -Peak	I_C	6.0	6.0	6.0	A
	I_{CM}	20	20	25	
Base Current	I_B	2.0			A
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	50			W
		0.4			
Operating and Storage Junction Temperature Range	T_J, T_{STG}	- 65 to +150			$^\circ\text{C}$

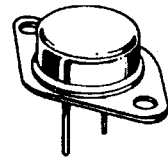
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	2.5	$^\circ\text{C}/\text{W}$

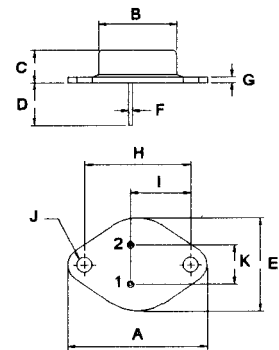


NPN
2SC681
2SC681ARD
2SC681AYL

6 AMPERE
SILICON POWER
TRANSISTOR
70-80 VOLTS
50 WATTS



TO-3



PIN 1.BASE
 2.EMITTER
 COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.20	26.67
F	0.92	1.09
G	1.38	1.62
H	29.90	30.40
I	16.64	17.30
J	3.88	4.36
K	10.67	11.18

ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector - Emitter Sustaining Voltage (1) ($I_c = 50 \text{ mA}, I_B = 0$)	2SC681 2SC681ARD 2SC681AYL	$V_{CE(sus)}$	70 80 80	V
Collector Cutoff Current ($V_{CE} = 200 \text{ V}, I_E = 0$) ($V_{CE} = 250 \text{ V}, I_E = 0$) ($V_{CE} = 300 \text{ V}, I_E = 0$)	2SC681 2SC681ARD 2SC681AYL	I_{CBO}	1.0 1.0 1.0	mA
Emitter Cutoff Current ($V_{EB} = 5.0 \text{ V}, I_C = 0$)		I_{EBO}	10	mA

ON CHARACTERISTICS (1)

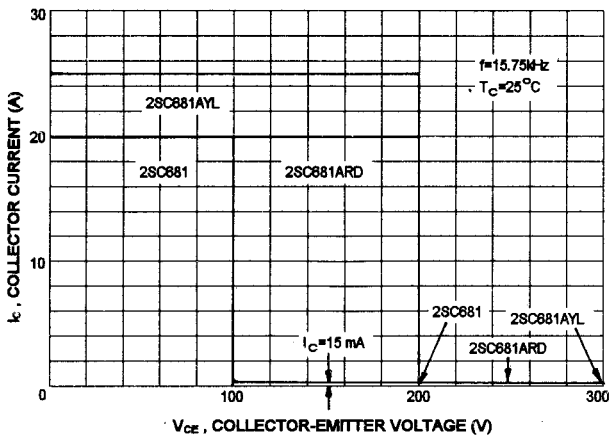
Collector-Emitter Saturation Voltage ($I_c = 5.0 \text{ A}, I_B = 0.6 \text{ A}$)		$V_{CE(sat)}$	2.0	V
Base-Emitter Saturation Voltage ($I_c = 5.0 \text{ A}, I_B = 0.6 \text{ A}$)		$V_{BE(sat)}$	1.5	V

SWITCHING CHARACTERISTICS

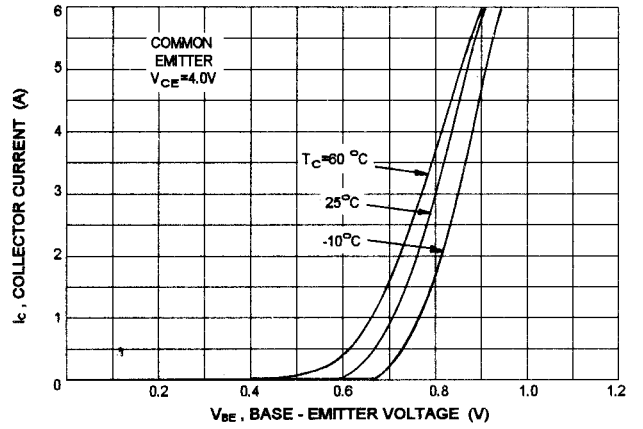
Fall Time ($I_c = 5.0 \text{ A}, I_{B1} = 0.6 \text{ A}, I_{B2} = -1.0 \text{ A}, V_{CC} = 25 \text{ V}$)		t_f	0.5	us
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(1) Pulse Test: Pulse width = 300 us , Duty Cycle $\leq 2.0\%$

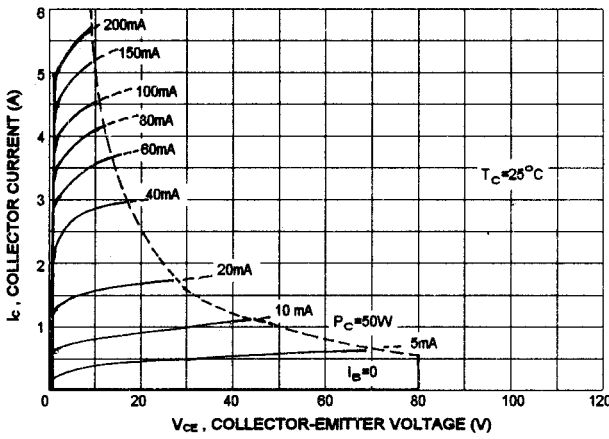
REVERSE BIASE SAFE OPERATING AREA



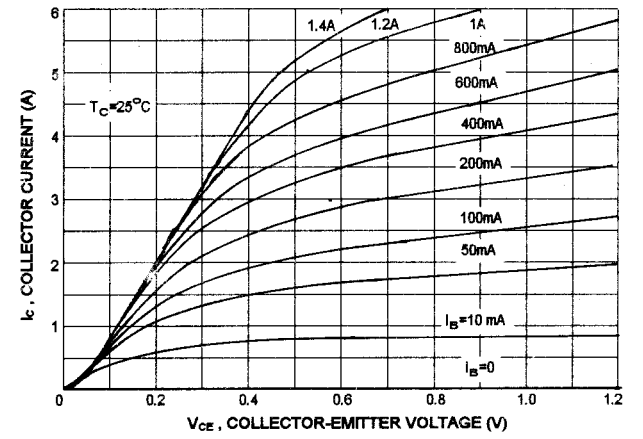
$I_C - V_{BE}$



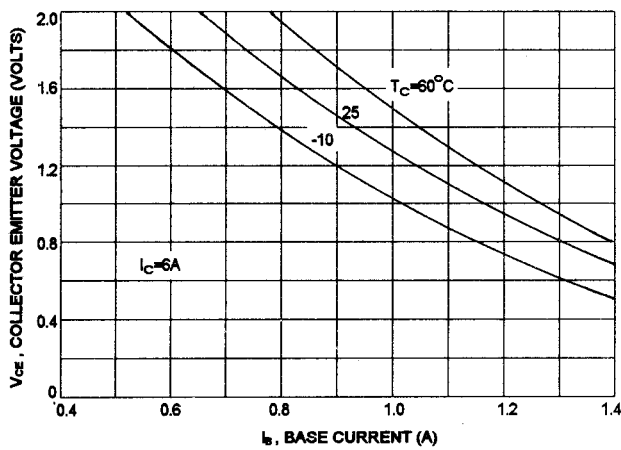
$I_C - V_{CE}$



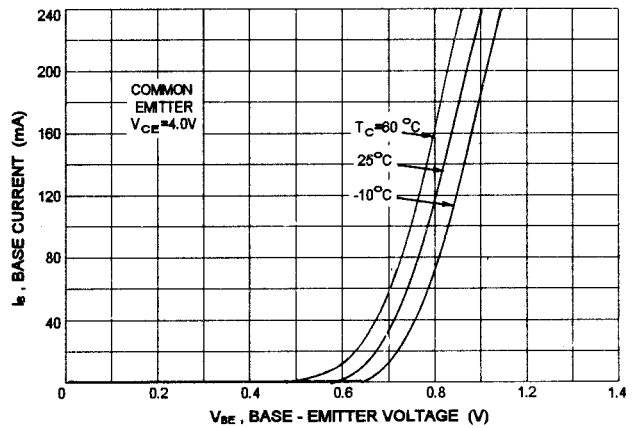
$I_C - V_{CE}$



COLLECTOR SATURATION REGION



$I_B - V_{BE}$





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