

HIGH-VOLTAGE HIGH-SPEED POWER TRANSISTORS

... designed for use in high-voltage, high-speed, power switching in inductive circuit, motor control, solenoid and relay drivers.

FEATURES:

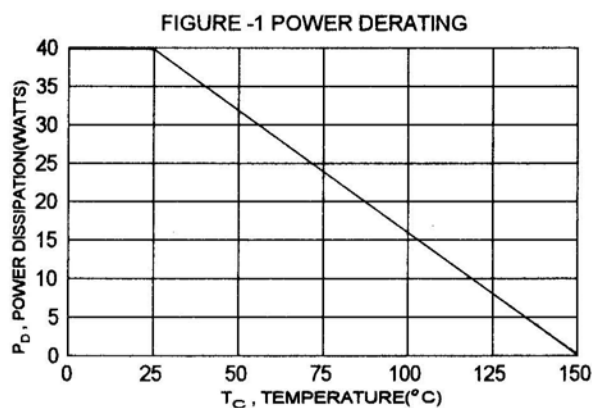
- * Collector-Emitter Sustaining Voltage-
 $V_{CEO(SUS)} = 800 \text{ V (Min)}$
- * Collector-Emitter Saturation Voltage -
 $V_{CE(SAT)} = 1.0 \text{ V (Max.) @ } I_C = 0.75 \text{ A}$

MAXIMUM RATINGS

Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	800	V
Collector-Base Voltage	V_{CBO}	900	V
Emitter-Base Voltage	V_{EBO}	7.0	V
Collector Current - Continuous -Peak	I_C	3.0 6.0	A
Base Current	I_B	1.5	A
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	40 0.32	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

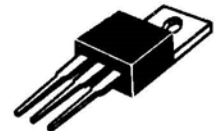
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	3.125	$^\circ\text{C/W}$

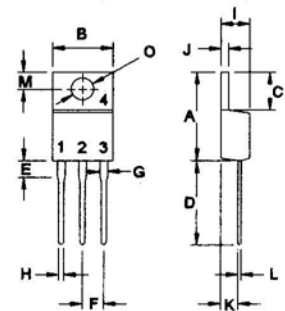


NPN
2SC2979

3 AMPERE
SILICON POWER
TRANSISTORS
800 VOLTS
40 WATTS



TO-220



PIN 1.BASE
2.COLLECTOR
3.EMITTER
4.COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	14.68	16.00
B	9.78	10.42
C	5.02	6.60
D	13.00	14.62
E	3.10	4.19
F	2.41	2.67
G	1.10	1.67
H	0.69	1.01
I	3.21	4.98
J	1.14	1.40
K	2.20	3.30
L	0.28	0.61
M	2.48	3.00
O	3.50	4.00

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

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

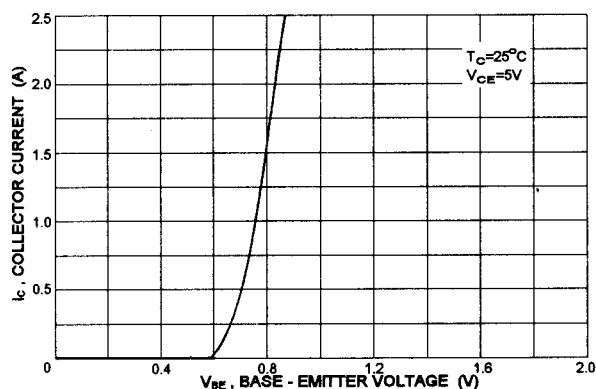
Collector-Emitter Sustaining Voltage ($I_C = 0.2\text{ A}$, $R_{BE} = \infty$, $L = 100\text{mH}$)	$V_{CEO(sus)}$	800		V
Collector-Emitter Sustaining Voltage ($I_C = 3\text{ A}$, $I_{B1} = 0.9\text{ A}$, $L = 180\mu\text{H}$, $V_{BE} = -5\text{ V}$, $I_{B2} = -0.6\text{ A}$ Clamped)	$V_{CEX(sus)}$	800		V
Collector Cutoff Current ($V_{CE} = 650\text{ V}$, $R_{BE} = \infty$)	I_{CEO}		100	μA
Collector Cutoff Current ($V_{CB} = 750\text{ V}$, $I_E = 0$)	I_{CBO}		100	μA
Emitter -Base Voltage ($I_E = 10\text{mA}$, $I_C = 0$)	V_{EBO}	7.0		V

ON CHARACTERISTICS (1)

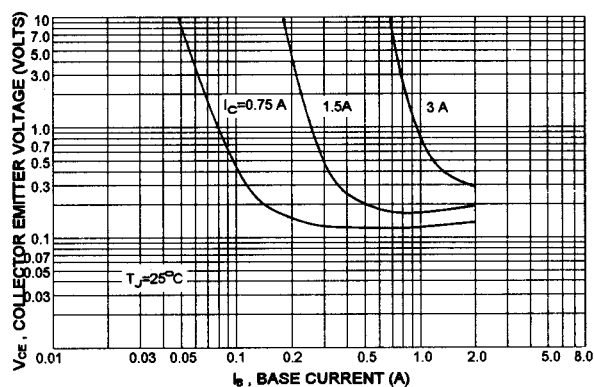
DC Current Gain ($V_{CE} = 5\text{ V}$, $I_C = 0.3\text{ A}$) ($V_{CE} = 5\text{ V}$, $I_C = 1.5\text{ A}$)	h_{FE}	15 7.0		
Base-Emitter Saturation Voltage ($I_C = 0.75\text{ A}$, $I_B = 0.15\text{ A}$)	$V_{BE(sat)}$		1.5	V
Collector-Emitter Saturation Voltage ($I_C = 0.75\text{ A}$, $I_B = 0.15\text{ A}$)	$V_{CE(sat)}$		1.0	V

SWITCHING CHARACTERISTICS

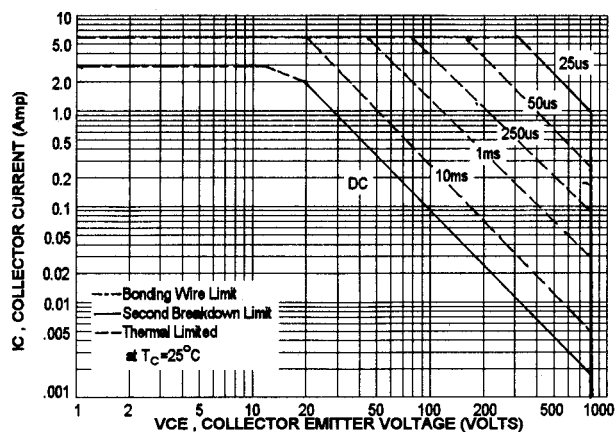
On Time	$I_C = 1.5\text{ A}$, $I_{B1} = 0.3\text{ A}$ $I_{B2} = -0.75\text{ A}$, $V_{CC} \approx 250\text{ V}$ $PW = 20\mu\text{s}$, $Duty \leq 20\%$	t_{on}	1.0	μs
Storage Time		t_s	3.0	μs
Fall Time		t_f	1.0	μs

(1) Pulse Test: Pulse Width = $300\mu\text{s}$, Duty Cycle $\leq 2.0\%$ $I_C - V_{BE}$ 

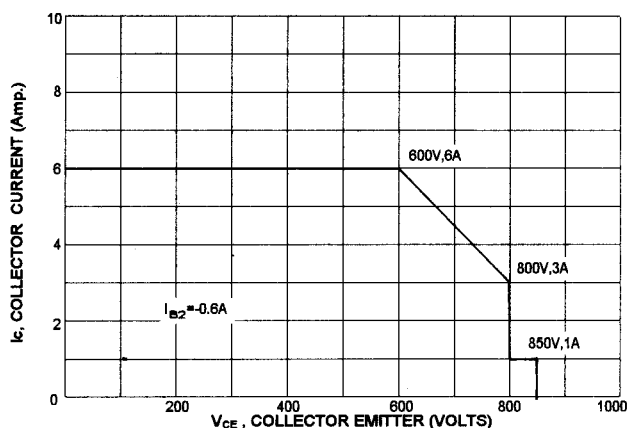
COLLECTOR SATURATION REGION



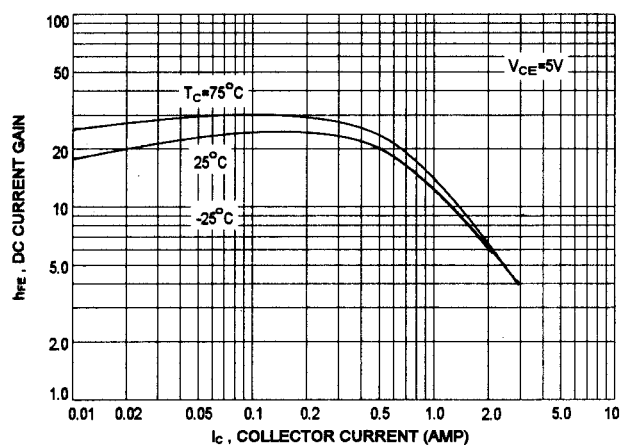
SAFE OPERATING AREA



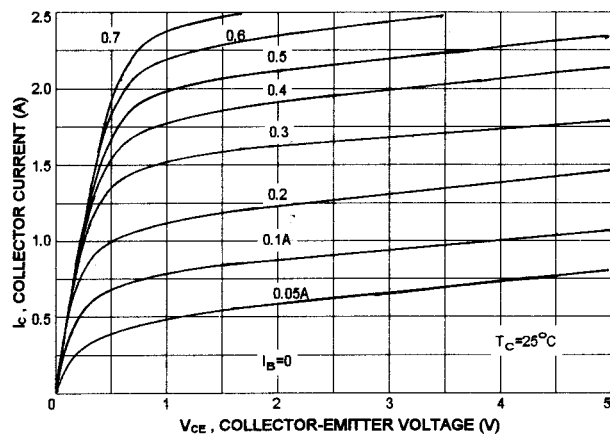
REVERSE BIASE SAFE OPERATING AREA



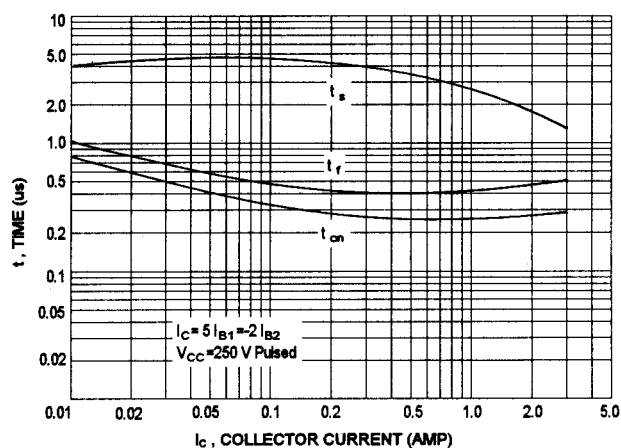
DC CURRENT GAIN



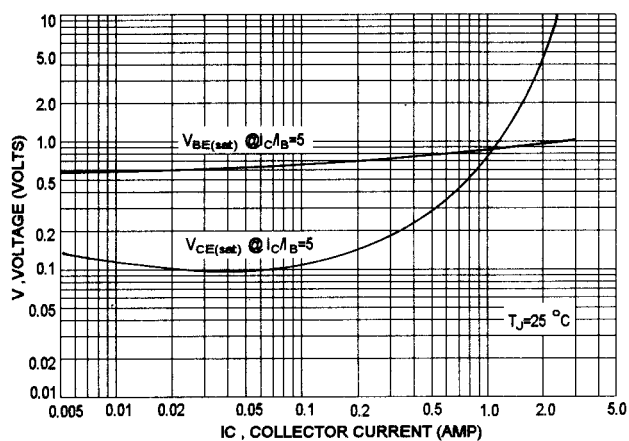
IC - Vce



SWITCHING TIME



"ON" VOLTAGES



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