

## 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:

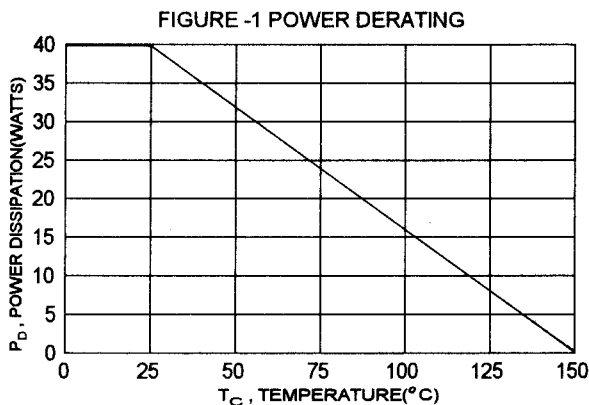
- \* Collector-Emitter Sustaining Voltage -  
 $V_{CEO(SUS)} = 800 \text{ V (Min)}$
- \* Collector-Emitter Saturation Voltage -  
 $V_{CE(SAT)} = 1.0 \text{ V (Max.) @ } I_C = 0.75 \text{ A}$

### 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 $25^\circ\text{C}$	$P_D$	40 0.32	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

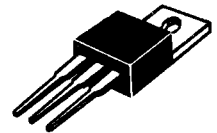
### THERMAL CHARACTERISTICS

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

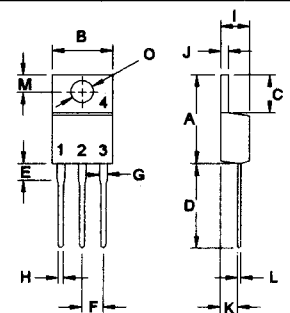


**NPN**  
**2SC2979**

**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	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90

**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	$\mu\text{A}$
Collector Cutoff Current ( $V_{CB} = 750\text{ V}, I_E = 0$ )	$I_{CBO}$		100	$\mu\text{A}$
Emitter -Base Voltage ( $I_E = 10\text{ mA}, I_c = 0$ )	$V_{EBO}$	7.0		V

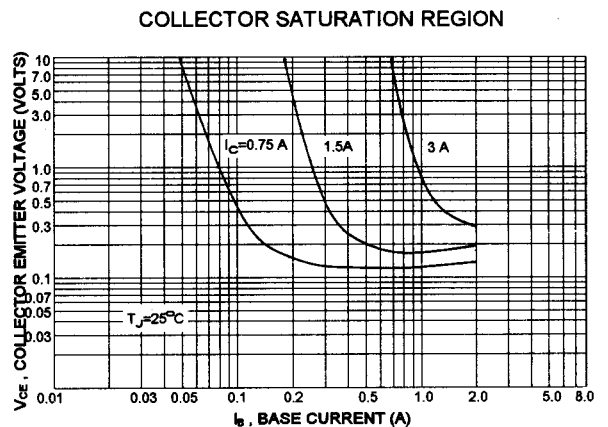
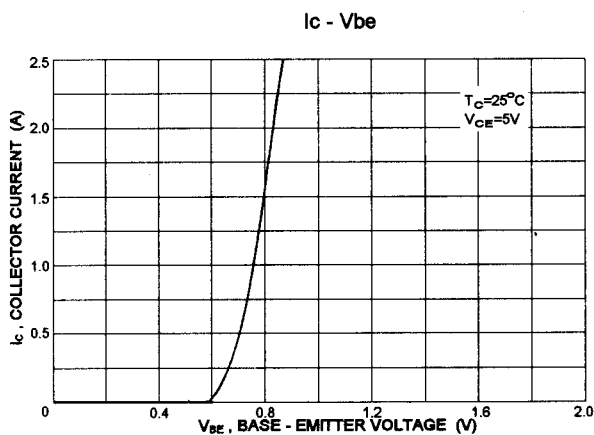
**ON CHARACTERISTICS (1)**

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

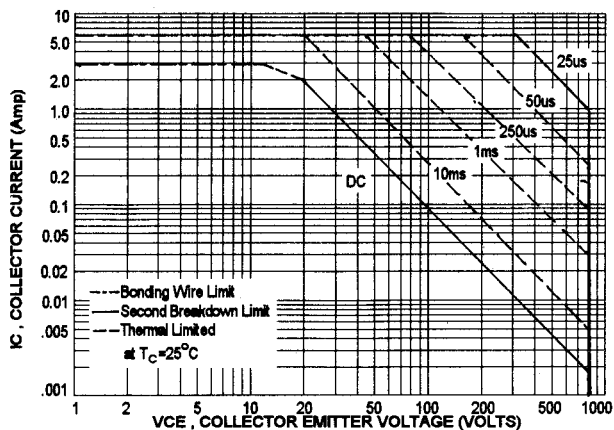
**SWITCHING CHARATERISTICS**

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

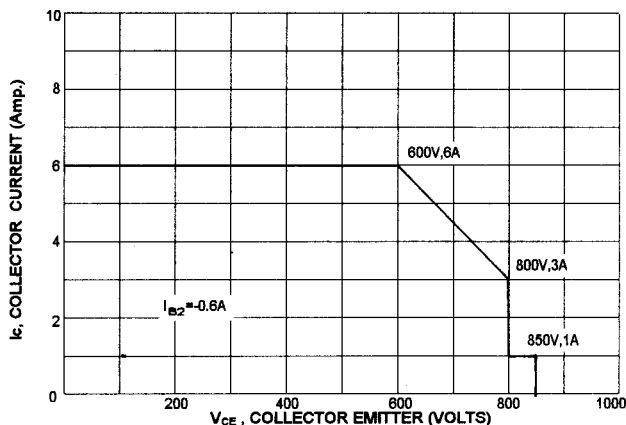
(1) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$



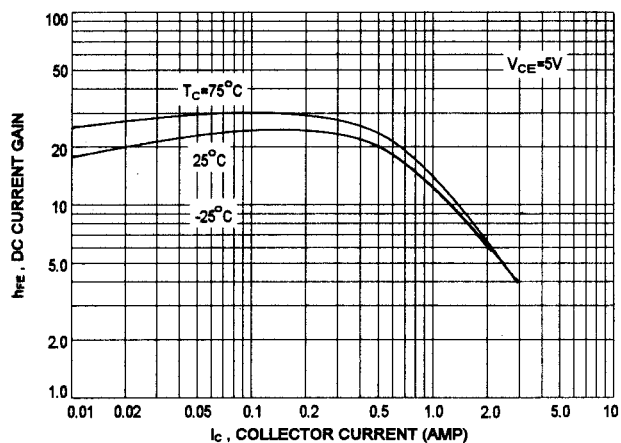
SAFE OPERATING AREA



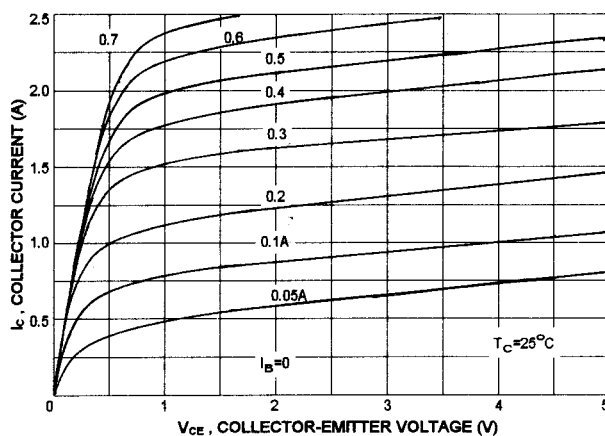
REVERSE BIASE SAFE OPERATING AREA



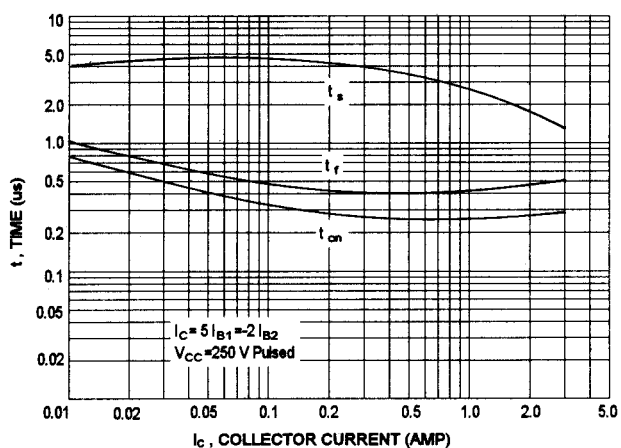
DC CURRENT GAIN



IC - Vce



SWITCHING TIME



"ON" VOLTAGES

