

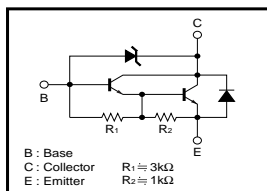
# Power transistor (90±10V, 3A)

## 2SC5060

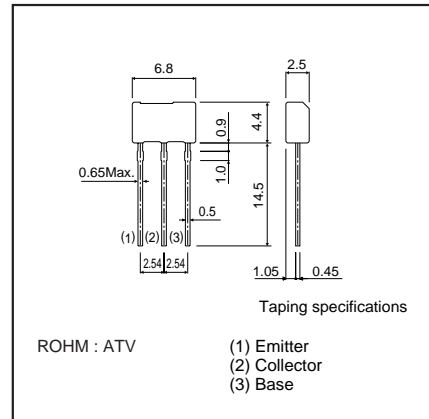
### ●Features

- 1) Built-in zener diode between collector and base.
- 2) Zener diode has low voltage dispersion.
- 3) Strong protection against reverse power surges due to "L" loads.
- 4) Darlington connection for high DC current gain.
- 5) Built-in resistor between base and emitter.
- 6) Built-in damper diode.

### ●Equivalent circuit



### ●External dimensions (Unit : mm)



### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CB0}$	90±10	V
Collector-emitter voltage	$V_{CE0}$	90±10	V
Emitter-base voltage	$V_{EB0}$	6	V
Collector current	$I_C$	1	A(DC)
	$I_{CP}$	2	A(Pulse) <sup>*1</sup>
Collector power dissipation	$P_C$	1	W <sup>*2</sup>
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

<sup>\*1</sup> Single pulse Pw=10ms

<sup>\*2</sup> Printed circuit board : 1.7 mm thick, collector copper plating at least 100mm<sup>2</sup>.

### ●Packaging specifications and hFE

Type	2SC5060
Package	ATV
hFE	M
Code	TV2
Basic ordering unit (pieces)	2500

### ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CB0}$	80	-	100	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	$BV_{CE0}$	80	-	100	V	$I_C=1mA$
Emitter-base breakdown voltage	$BV_{EB0}$	6	-	-	V	$I_E=5mA$
Collector cutoff current	$I_{CB0}$	-	-	10	$\mu A$	$V_{CB}=70V$
Emitter cutoff current	$I_{EB0}$	-	-	3	mA	$V_{EB}=5V$
DC current transfer ratio	hFE	1000	-	5000	-	$V_{CE}=3V, I_C=0.5A$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	1.5	V	$I_C/I_E=500mA/1mA$
Base-emitter saturation voltage	$V_{BE(sat)}$	-	-	2	V	$I_C/I_E=500mA/1mA$
Transition frequency	f <sub>r</sub>	-	80	-	MHz	$V_{CB}=5V, I_E=0.1A, f=30MHz$
Output capacitance	C <sub>ob</sub>	-	20	-	pF	$V_{CE}=10V, I_E=0A, f=1MHz$
Turn-on time	t <sub>on</sub>	-	0.2	-	$\mu s$	$I_C=0.8A, R_L=50\Omega$
Storage time	t <sub>stg</sub>	-	5	-	$\mu s$	$I_{B1}=-I_{B2}=8mA$
Fall time	t <sub>f</sub>	-	0.6	-	$\mu s$	$V_{CC} \approx 40V$

<sup>\*1</sup> Measured using pulse current. <sup>\*2</sup> Transition frequency of the device.

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●Electrical characteristics curves

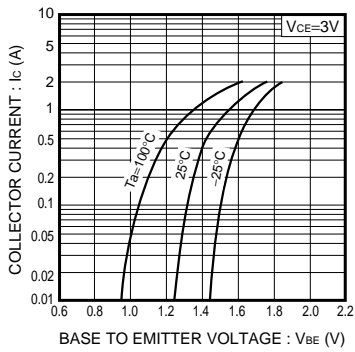


Fig.1 Ground emitter propagation characteristics

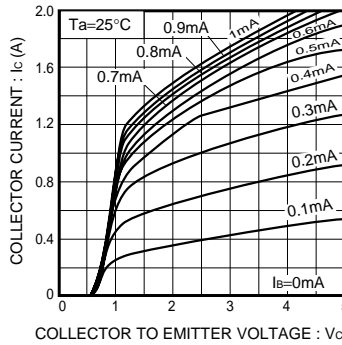


Fig.2 Ground emitter output characteristics (I)

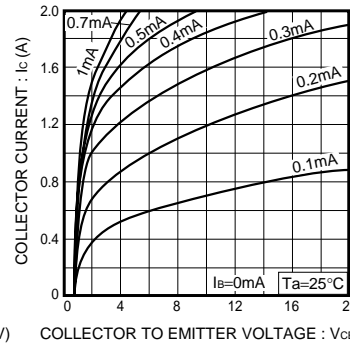


Fig.3 Ground emitter output characteristics (II)

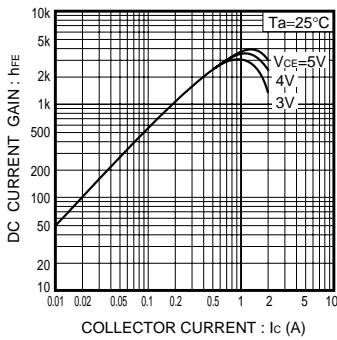


Fig.4 DC current gain vs. collector current ( I )

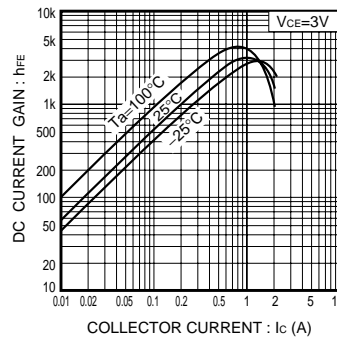


Fig.5 DC current gain vs. collector current (II)

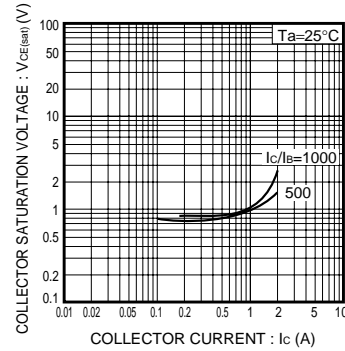


Fig.6 Collector-emitter saturation voltage vs. collector current

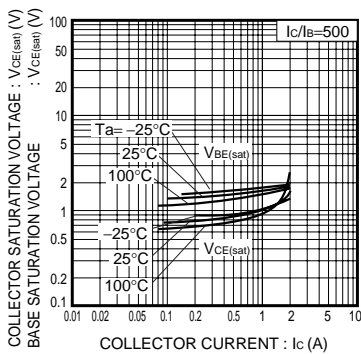


Fig.7 Collector-emitter saturation voltage vs. collector current

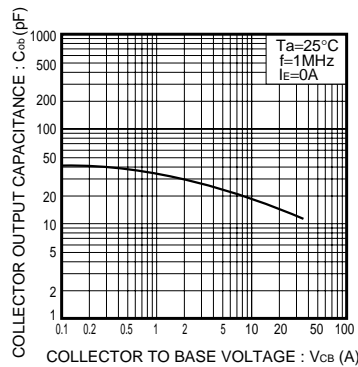


Fig.8 Collector output capacitance vs. collector-base voltage

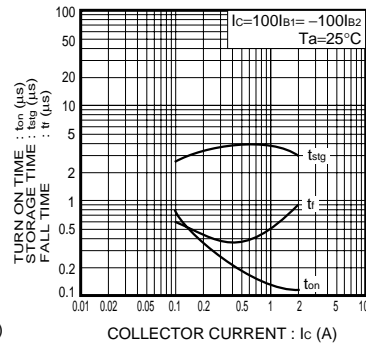
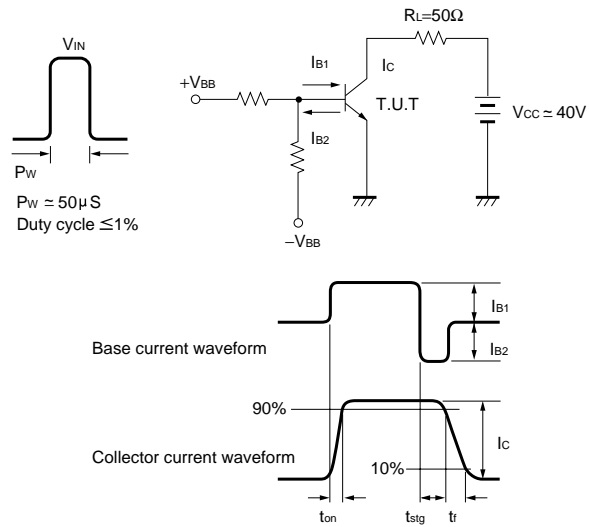
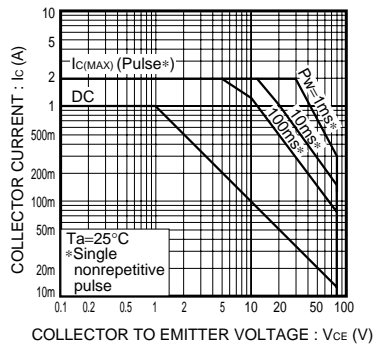


Fig.9 Switching characteristics

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