

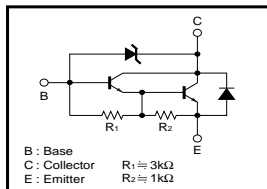
Power transistor (90±10V, 3A)

2SC5060

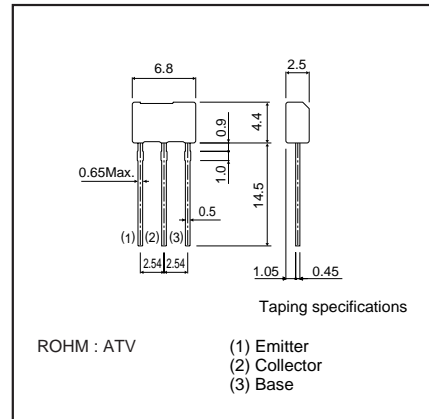
●Features

- 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) ^{*1}
Collector power dissipation	P_C	1	W ^{*2}
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

^{*1} Single pulse Pw=10ms

^{*2} Printed circuit board : 1.7 mm thick, collector copper plating at least 100mm².

●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	μA	$V_{CB}=70V$
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 _r	-	80	-	MHz	$V_{CB}=5V, I_E=0.1A, f=30MHz$
Output capacitance	C _{ob}	-	20	-	pF	$V_{CE}=10V, I_E=0A, f=1MHz$
Turn-on time	t _{on}	-	0.2	-	μs	$I_C=0.8A, R_L=50\Omega$
Storage time	t _{stg}	-	5	-	μs	$I_{B1}=-I_{B2}=8mA$
Fall time	t _f	-	0.6	-	μs	$V_{CC} \approx 40V$

^{*1} Measured using pulse current. ^{*2} Transition frequency of the device.

Transistors

●Electrical characteristics curves

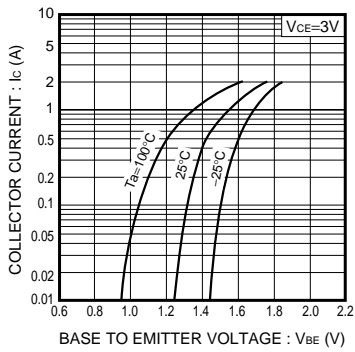


Fig.1 Ground emitter propagation characteristics

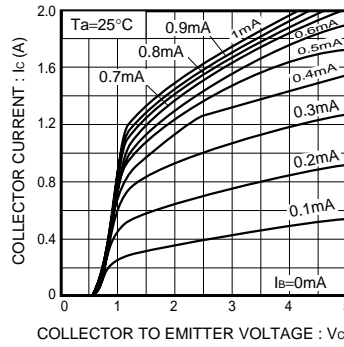


Fig.2 Ground emitter output characteristics (I)

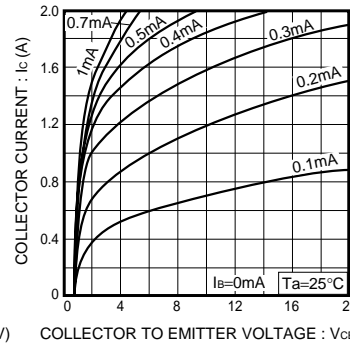


Fig.3 Ground emitter output characteristics (II)

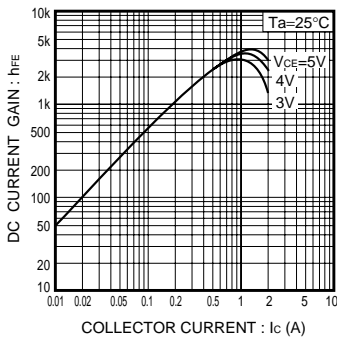


Fig.4 DC current gain vs. collector current (I)

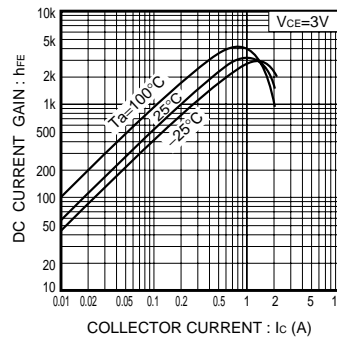


Fig.5 DC current gain vs. collector current (II)

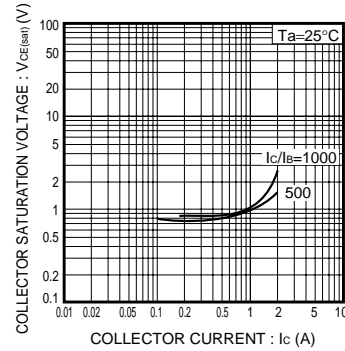


Fig.6 Collector-emitter saturation voltage vs. collector current

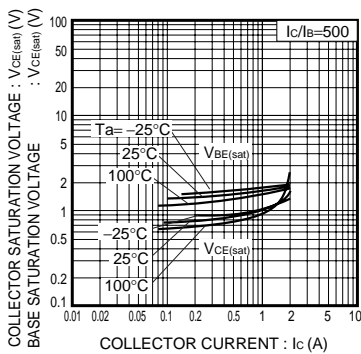


Fig.7 Collector-emitter saturation voltage vs. collector current

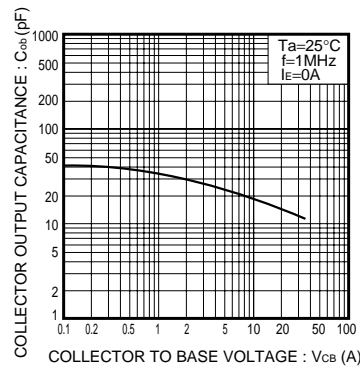


Fig.8 Collector output capacitance vs. collector-base voltage

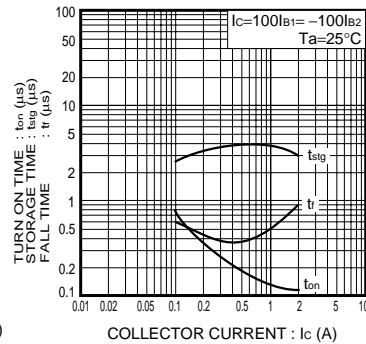


Fig.9 Switching characteristics

Transistors

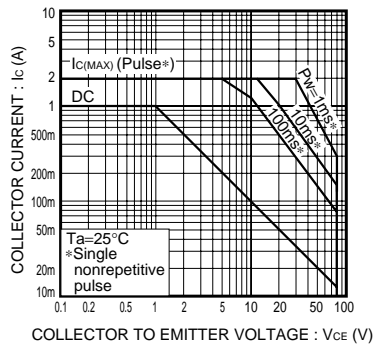


Fig.10 Safe operating area

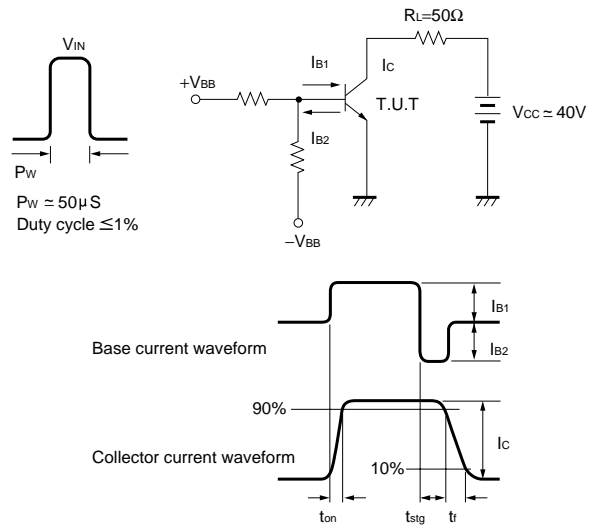


Fig.11 Switching time measurement circuit

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