

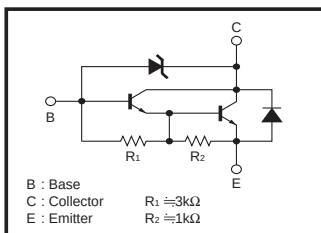
Power transistor (90±10V, 3A)

2SC5060

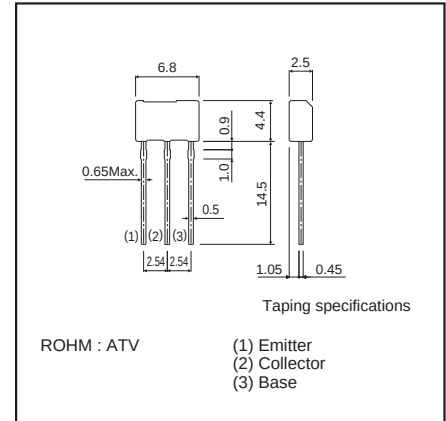
●Features

- 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.

●Inner circuit



●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 P_{avg} ≤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	h_{FE}	1000	—	2500	—	$V_{CE}=3V, I_C=0.5A$ *1
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	$I_C/I_E=500mA/1mA$ *1
Transition frequency	f_T	—	80	—	MHz	$V_{CB}=5V, I_E=-0.1A, f=30MHz$ *2
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	$V_{CC}=40V$

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

●Electrical characteristics curves

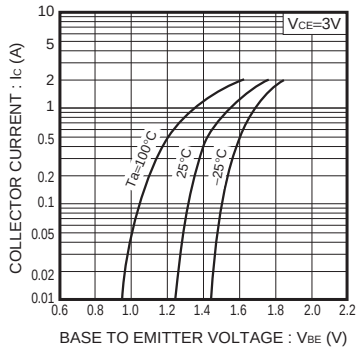


Fig.1 Ground emitter propagation characteristics

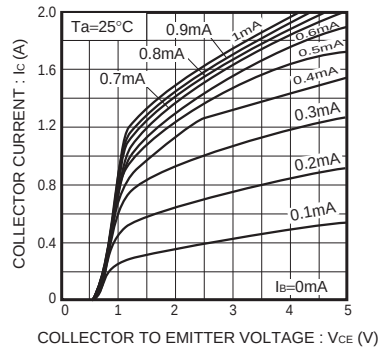


Fig.2 Ground emitter output characteristics(I)

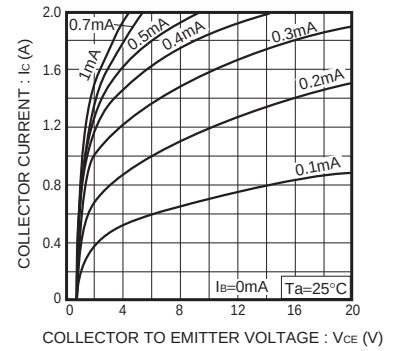


Fig.3 Ground emitter output characteristics(II)

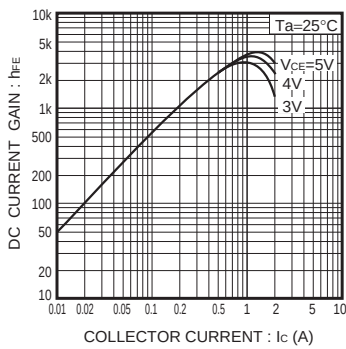


Fig.4 DC current gain vs. collector current (I)

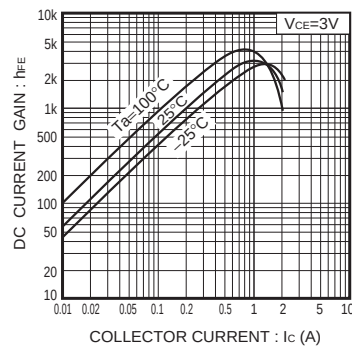


Fig.5 DC current gain vs. collector current(II)

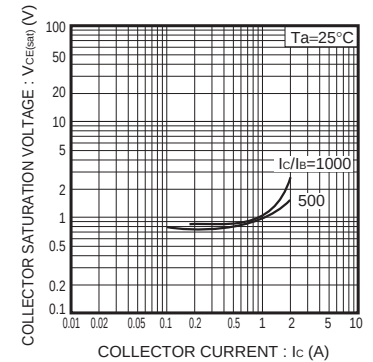


Fig.6 Collector-emitter saturation voltage vs. collector current

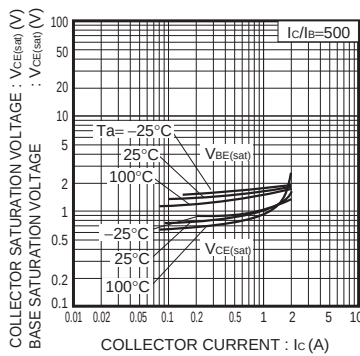
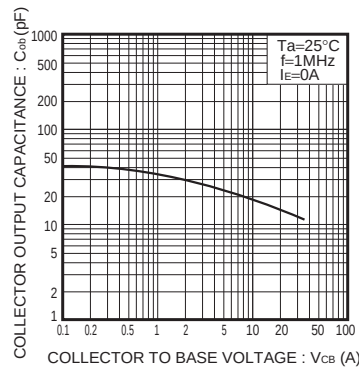
Fig.7 Collector-emitter saturation voltage vs. collector current
Base-emitter saturation voltage

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

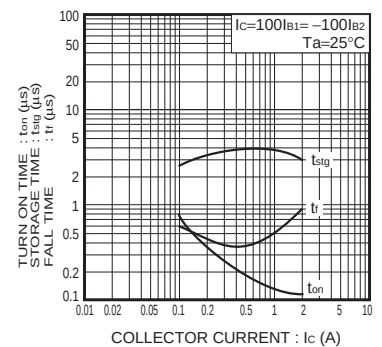
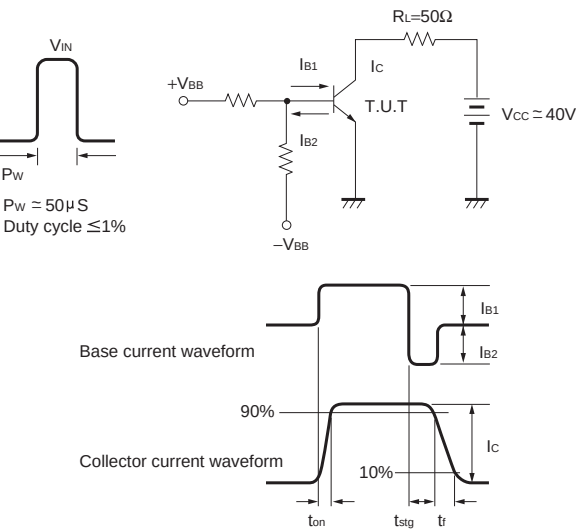
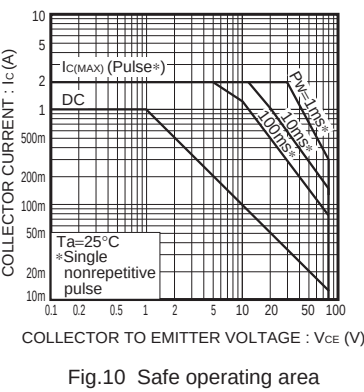


Fig.9 Switching characteristics



Notes

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