CHENMKO ENTERPRISE CO.,LTD

Halogens free devices

SMALL FLAT
NPN Epitaxial Transistor
VOLTAGE 20 Volts CURRENT 5 Amperes

2SD2098GP

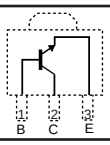
APPLICATION
* Power driver and Strobe Flash .

FEATURE
* Small flat package. (SC-62/SOT-89)
* Low saturation voltage $V_{CE(sat)}$=0.25V(Typ.)(I_C/I_B=4A/0.1A)
* High speed switching time: t_{stg}= 1.0uSec (typ.)
* PC= 2.0W (mounted on ceramic substrate).
* High saturation current capability.

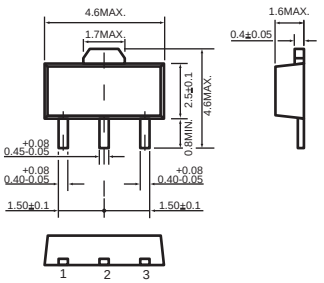
CONSTRUCTION
* NPN Cilicon Transistor

MARKING
***** hFE Classification Q: Q98
R: R98

CIRCUIT



SC-62/SOT-89



1 Base
2 Collector (Heat Sink)
3 Emitter

Dimensions in millimeters

SC-62/SOT-89

MAXIMUM RATINGES (At T_A = 25°C unless otherwise noted)

RATINGS	CONDITION	SYMBOL	MIN.	MAX.	UNITS
Collector - Base Voltage	Open Emitter	V_{CBO}	-	50	Volts
Collector - Emitter Voltage	Open Base	V_{CEO}	-	20	Volts
Emitter - Base Voltage	Open Collector	V_{EBO}	-	6	Volts
Collector Current DC		I_C	-	5	Amps
Peak Collector Current		I_{CM}	-	10	Amps
Peak Base Current		I_{BM}	-	0.5	Amps
Total Power Dissipation	$T_A \leq 25^oC$; Note 1	P_{TOT}	-	2.0	W
Storage Temperature		T_{STG}	-55	+150	°C
Junction Temperature		T_J	-	+150	°C
Operating Ambient Temperature		T_{AMB}	-55	+150	°C

Note
1. Transistor mounted on ceramic substrate by 40mmX40mmx0.7mm.
2. Measured at Pulse Width 300 us, Duty Cycle 2%.

RATING CHARACTERISTIC CURVES (2SD2098GP)

CHARACTERISTICS (At T_A = 25°C unless otherwise noted)

PARAMETERS	CONDITION	SYMBOL	MIN.	TYPE	MAX.	UNITS
Collector Cut-off Current	I_E=0; V_{CB}=40V	I_{CBO}	-	-	0.5	uA
Emitter Cut-off Current	I_C=0; V_{EB}=5V	I_{CEO}	-	-	0.5	uA
DC Current Gain	V_{CE}=2V; Note 1 I_C=0.5A	h_{FE}	120	-	390	
Collector-Emitter Saturation Voltage	I_C=4A; I_B=0.1A	V_{CEsat}	-	0.25	1.0	Volts
Base-Emitter Saturation Voltage	I_C=4A; I_B=0.1A	V_{BEsat}	-	1.0	2.0	Volts
Collector Capacitance	I_E=ie=0; V_{CB}=20V; f=1MHz	C_C	-	30	-	pF
Transition Frequency	I_C=-0.05A; V_{CE}=6.0V; f=100MHz	f_T	-	150	-	MHz

Note :
1. Pulse test: tp ≤ 300uSec; δ ≤ 0.02.
2. hFE(2) Classification Q: 120 to 270, R: 180 to 390.

RATING CHARACTERISTIC CURVES (2SD2098GP)

Fig.1 Grounded emitter propagation characteristics

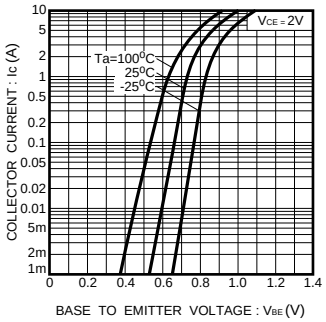


Fig.2 Grounded emitter output characteristics

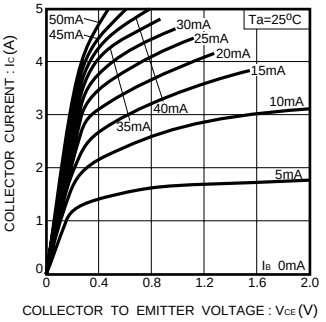


Fig.3 DC current gain vs. collector current (I)

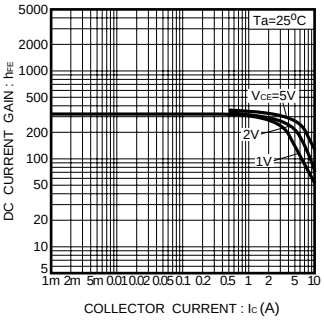


Fig.4 DC current gain vs. collector current (II)

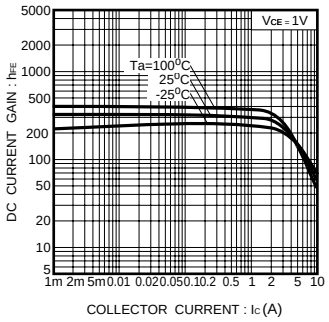


Fig.5 DC current gain vs. collector current (III)

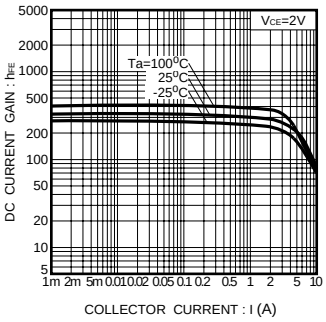


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

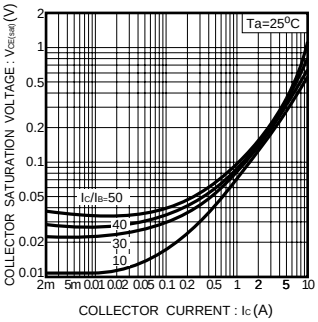


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

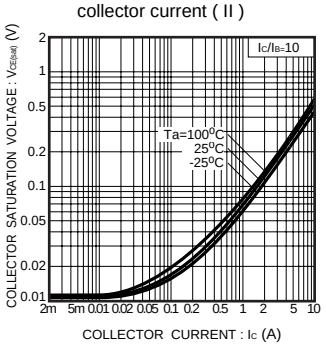


Fig.8 Collector-emitter saturation voltage vs. collector current (III)

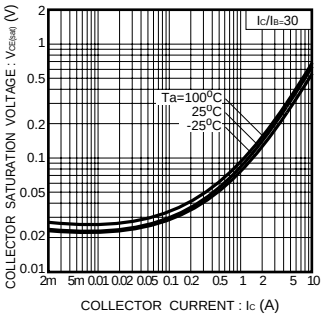
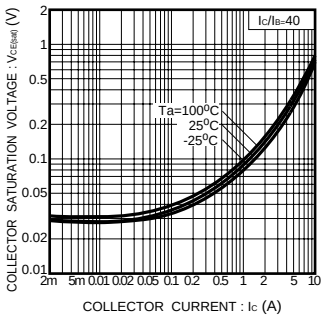


Fig.9 Collector-emitter saturation voltage vs. collector current (IV)



RATING CHARACTERISTIC CURVES (2SD2098GP)

Fig.10 Collector-emitter saturation voltage vs. collector current (V)

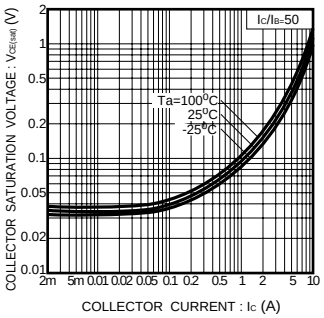


Fig.11 Gain bandwidth product vs. emitter current

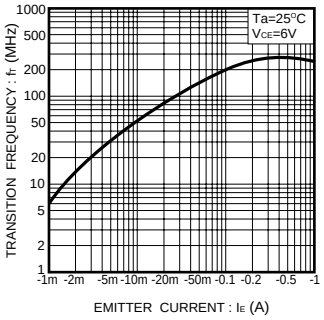


Fig.12 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

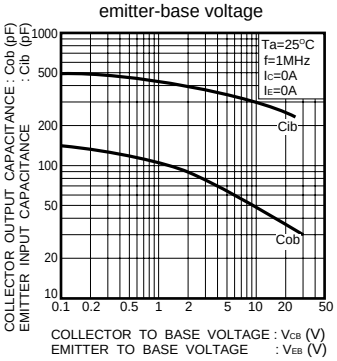


Fig.13 Safe operating area