



CHENMKO ENTERPRISE CO.,LTD

Halogens free devices

SURFACE MOUNT
PNP&NPN Multi-Chip General Purpose Transistor
 VOLTAGE 50 Volts CURRENT 150 mAmperes

CH837UPNGP

APPLICATION

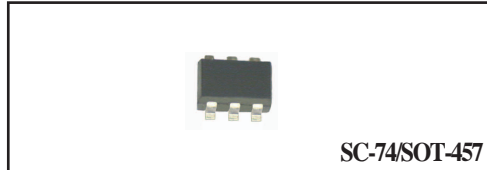
- * AF input stages and driver applicationon equipment.
- * Other general purpose applications.

FEATURE

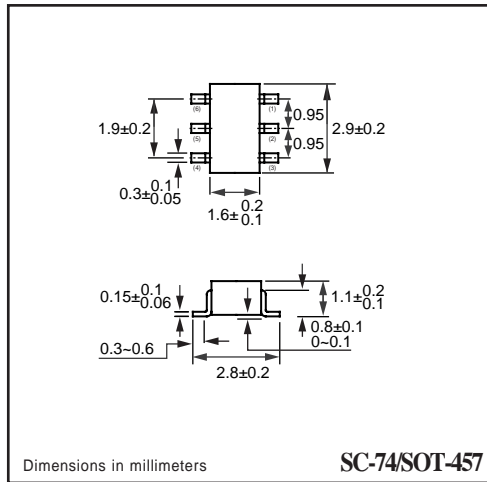
- * Small surface mounting type. (SC-74/SOT-457)
- * High current gain.
- * Suitable for high packing density.
- * Low collector-emitter saturation.
- * High saturation current capability.
- * Two internal isolated PNP and NPN transistors in one package.

CONSTRUCTION

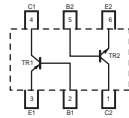
- * PNP and NPN transistors in one package.



SC-74/SOT-457



CIRCUIT



LIMITING VALUES of TR1(PNP Transistor)

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CBO}	collector-base voltage	open emitter	-	-50	V
V _{CEO}	collector-emitter voltage	open base	-	-50	V
V _{CES}	collector-base voltage	open emitter	-	-50	V
V _{EBO}	emitter-base voltage	open collector	-	-6	V
I _C	collector current (DC)		-	-150	mA
I _{CM}	peak collector current		-	-200	mA
I _{BM}	peak base current		-	-30	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	-	200	mW
T _{stg}	storage temperature		-55	+150	°C
T _j	junction temperature		-	150	°C
T _{amb}	operating ambient temperature		-55	+150	°C

Note

1. Transistor mounted on an FR4 printed-circuit board.

RATING CHARACTERISTIC (CH837UPNGP)

LIMITING VALUES of TR2(NPN Transistor)

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	50	V
V_{CEO}	collector-emitter voltage	open base	–	50	V
V_{CES}	collector-base voltage	open emitter	–	50	V
V_{EBO}	emitter-base voltage	open collector	–	7	V
I_C	collector current (DC)		–	150	mA
I_{CM}	peak collector current		–	200	mA
I_{BM}	peak base current		–	30	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^\circ\text{C}$; note 1	–	200	mW
T_{stg}	storage temperature		–55	+150	$^\circ\text{C}$
T_j	junction temperature		–	150	$^\circ\text{C}$
T_{amb}	operating ambient temperature		–55	+150	$^\circ\text{C}$

Note

1. Transistor mounted on an FR4 printed-circuit board.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to ambient	note 1	415	K/W

Note

1. Transistor mounted on an FR4 printed-circuit board.

CHARACTERISTICS of TR1(PNP Transistor)

$T_{amb} = 25\text{ }^\circ\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = 50\text{ V}$	–	–	-0.1	μA
		$I_C = 0; V_{CB} = 50\text{ V}; T_A = 125\text{ }^\circ\text{C}$	–	–	-50	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = -6\text{ V}$	–	–	-0.1	μA
h_{FE}	DC current gain	$I_C = -2.0\text{ mA}; V_{CE} = -6.0\text{V}$; note 1	120	–	400	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -100\text{ mA}; I_B = -10\text{ mA}$	–	-200	-400	mV
C_c	collector capacitance	$I_E = I_E = 0; V_{CB} = -10\text{V}; f = 1\text{ MHz}$	–	4.0	5.0	pF
f_T	transition frequency	$I_C = -1\text{mA}; V_{CE} = -10\text{V}; f = 100\text{ MHz}$	–	120	–	MHz

Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$.
2. h_{FE} : Y:120~240; G:200~400

RATING CHARACTERISTIC (CH837UPNGP)

CHARACTERISTICS of TR2 (NPN Transistor)

$T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

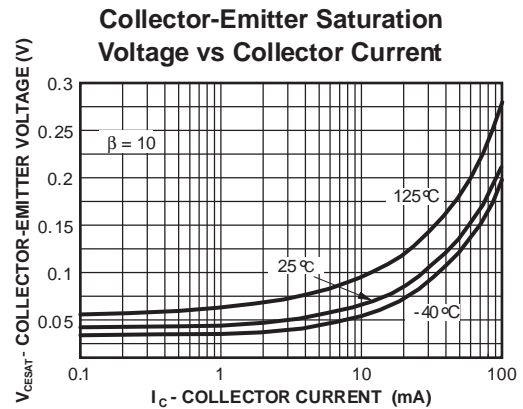
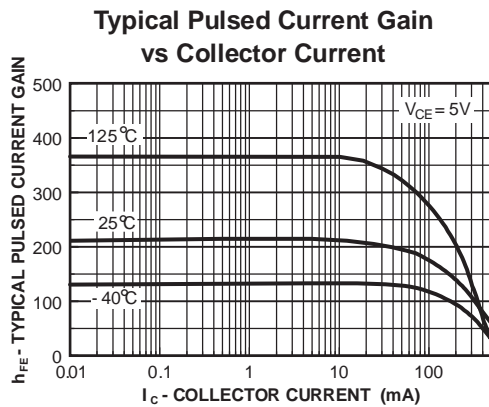
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = -50\text{ V}$	–	–	0.1	μA
		$I_C = 0; V_{CB} = -50\text{ V}; T_A = 125\text{ }^{\circ}\text{C}$	–	–	50	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 6\text{ V}$	–	–	0.1	μA
h_{FE}	DC current gain	$I_C = 2.0\text{ mA}; V_{CE} = 6.0\text{V}; \text{note 1}$	120	–	400	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 100\text{ mA}; I_B = 10\text{ mA}$	–	100	300	mV
C_c	collector capacitance	$I_E = i_e = 0; V_{CB} = 10\text{V}; f = 1\text{ MHz}$	–	2.0	3.5	pF
f_T	transition frequency	$I_C = 1\text{ mA}; V_{CE} = 10\text{V}; f = 100\text{ MHz}$	–	150	–	MHz

Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$.
2. h_{FE} : Y:120~240; G:200~400

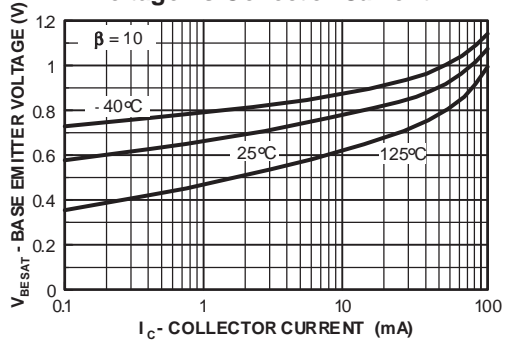
RATING CHARACTERISTIC CURVES (CH837UPNGP)

CHARACTERISTIC CURVES of Tr1 (PNP Transistor)

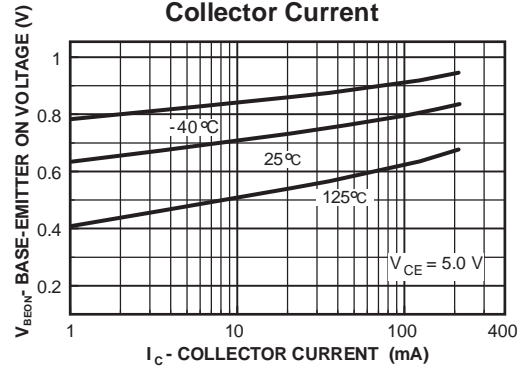


RATING CHARACTERISTIC CURVES (CH837UPNGP)

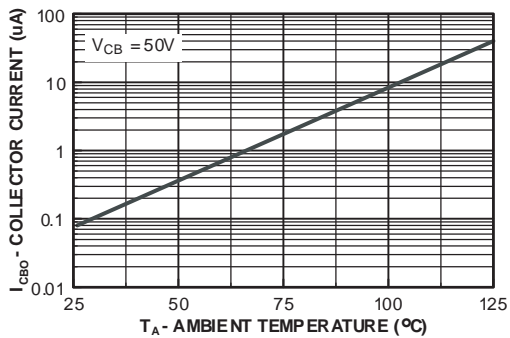
Base-Emitter Saturation Voltage vs Collector Current



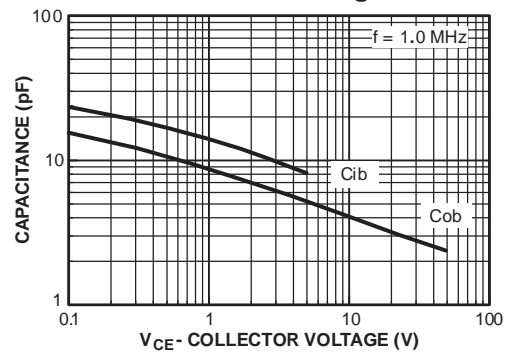
Base-Emitter ON Voltage vs Collector Current



Collector-Cutoff Current vs Ambient Temperature

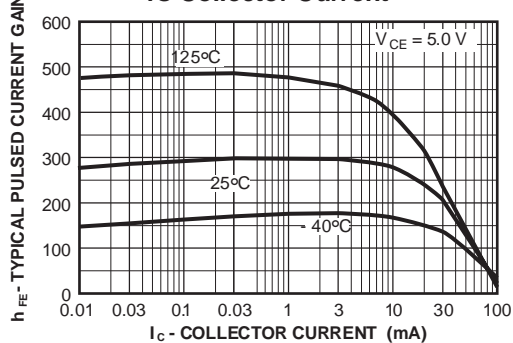


Input and Output Capacitance vs Reverse Voltage

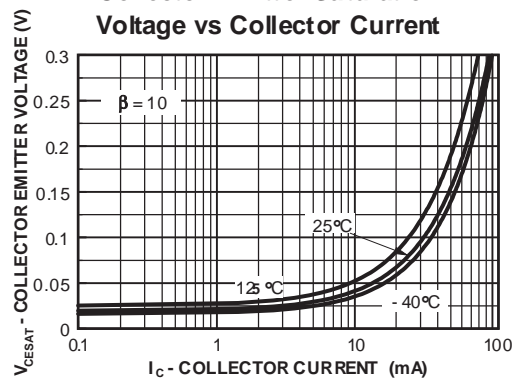


CHARACTERISTIC CURVES of Tr2 (NPN Transistor)

Typical Pulsed Current Gain vs Collector Current

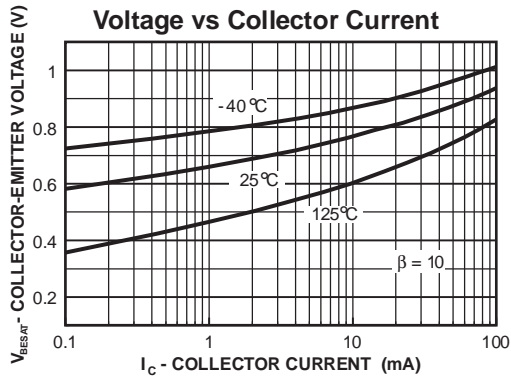


Collector-Emitter Saturation Voltage vs Collector Current

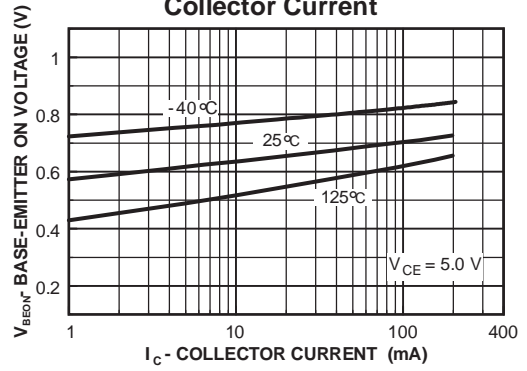


RATING CHARACTERISTIC CURVES (CH837UPNGP)

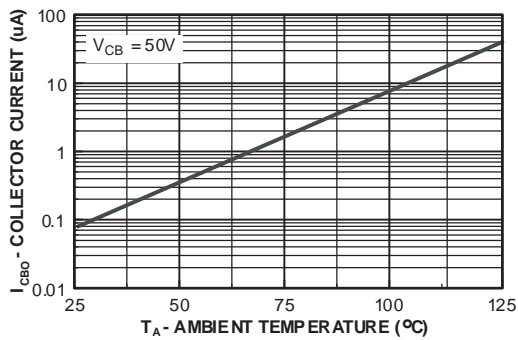
Base-Emitter Saturation Voltage vs Collector Current



Base-Emitter ON Voltage vs Collector Current



Collector-Cutoff Current vs Ambient Temperature



Input and Output Capacitance vs Reverse Voltage

