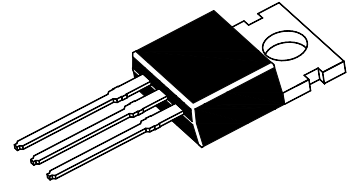


# TIP42C

## PNP Silicon Epitaxial Planar Transistor

for power switching and amplifier applications



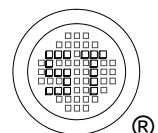
TO-220FB Plastic Package  
1.Base 2.Collector 3.Emitter

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{\text{CBO}}$	100	V
Collector Emitter Voltage	$-V_{\text{CEO}}$	100	V
Emitter Base Voltage	$-V_{\text{EBO}}$	5	V
Collector Current	$-I_{\text{C}}$	6	A
Peak Collector Current, Pulsed	$-I_{\text{CM}}$	10	A
Power Dissipation ( $T_a = 25^\circ\text{C}$ )	$P_{\text{tot}}$	2.5	W
Power Dissipation ( $T_c = 25^\circ\text{C}$ )	$P_{\text{tot}}$	41.67	W
Junction Temperature	$T_{\text{j}}$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{\text{stg}}$	- 65 to + 150	$^\circ\text{C}$

### Thermal Characteristics

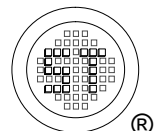
Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Case	$R_{\theta\text{JC}}$	3	$^\circ\text{C/W}$
Thermal Resistance from Junction to Ambient	$R_{\theta\text{JA}}$	50	$^\circ\text{C/W}$



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## Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $-V_{CE} = 4\text{ V}$ , $-I_C = 0.3\text{ A}$ at $-V_{CE} = 4\text{ V}$ , $-I_C = 3\text{ A}$	$h_{FE}$ $h_{FE}$	30 15	- 75	- -
Collector Emitter Cutoff Current at $-V_{CE} = 100\text{ V}$	$-I_{CES}$	-	0.4	mA
Collector Emitter Cutoff Current at $-V_{CE} = 60\text{ V}$	$-I_{CEO}$	-	0.7	mA
Emitter Base Cutoff Current at $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	-	1	mA
Collector Emitter Breakdown Voltage at $-I_C = 30\text{ mA}$	$-V_{(BR)CEO}$	100	-	V
Collector Base Breakdown Voltage at $-I_C = 100\text{ }\mu\text{A}$ , $I_E = 0$	$-V_{(BR)CBO}$	100	-	V
Emitter Base Breakdown Voltage at $-I_E = 1\text{ mA}$ , $I_C = 0$	$-V_{(BR)EBO}$	5	-	V
Collector Emitter Saturation Voltage at $-I_C = 6\text{ A}$ , $-I_B = 600\text{ mA}$	$-V_{CE(sat)}$	-	1.5	V
Base Emitter Saturation Voltage at $-I_C = 6\text{ A}$ , $-I_B = 600\text{ mA}$	$-V_{BE(sat)}$	-	2	V
Base Emitter On Voltage at $-V_{CE} = 4\text{ V}$ , $-I_C = 6\text{ A}$	$-V_{BE(on)}$	-	2	V
Transition Frequency at $-V_{CE} = 10\text{ V}$ , $-I_C = 500\text{ mA}$ , $f = 1\text{ MHz}$	$f_T$	3	-	MHz



## Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

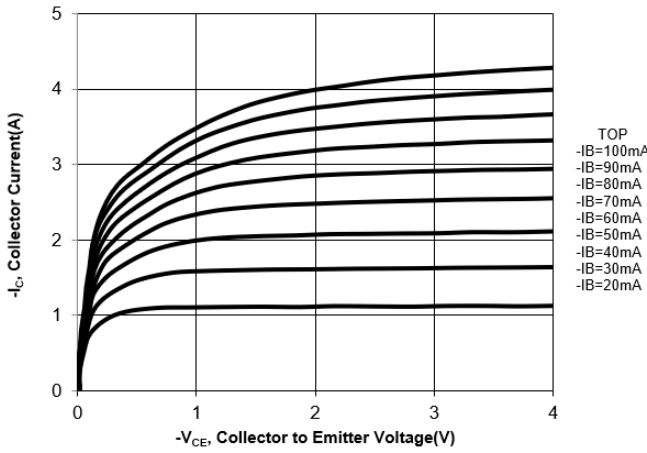


Fig. 2 Output Characteristics Curve

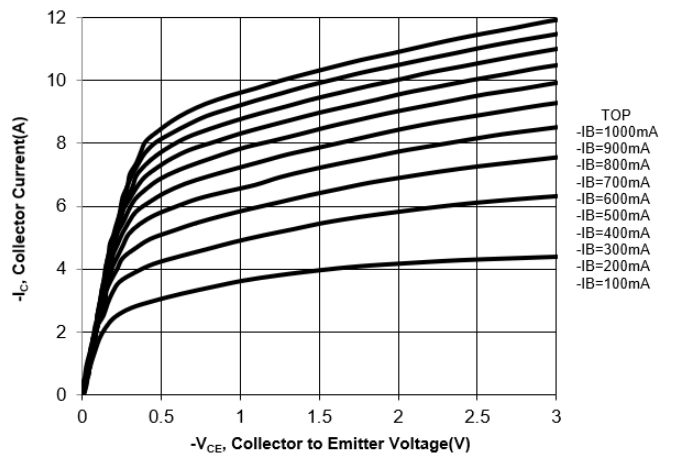


Fig. 3 Collector Current Vs. Base to Emitter Voltage

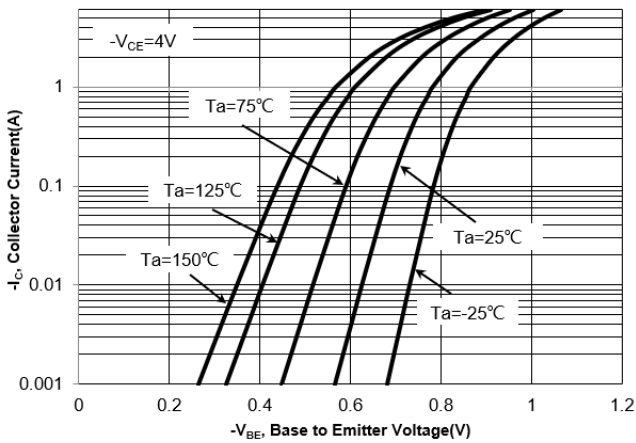


Fig. 4  $h_{FE,DC}$  Current Gain vs. Collector Current

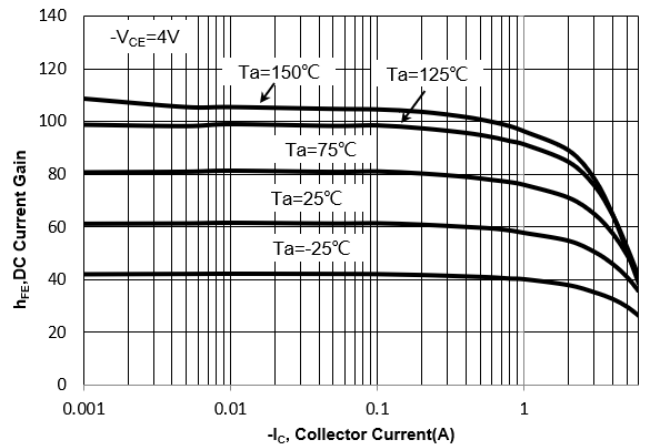


Fig. 5  $V_{BESAT}$  vs. Collector Current

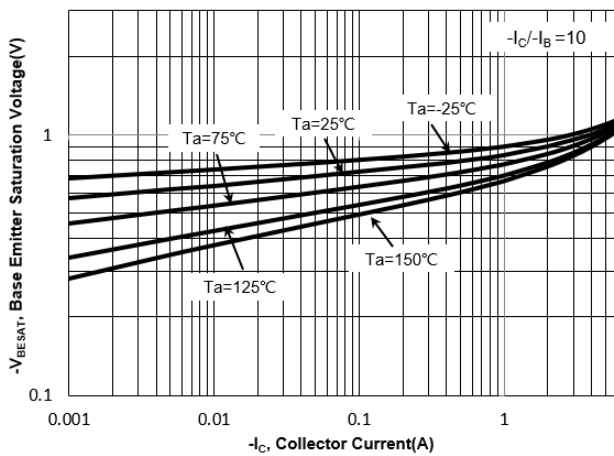
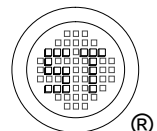
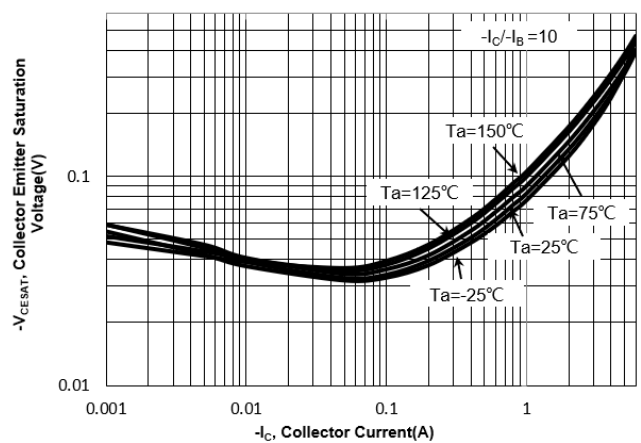


Fig. 6  $V_{CESAT}$  vs. Collector Current



# TIP42C

## Electrical Characteristics Curves

Fig. 7 Junction Capacitance

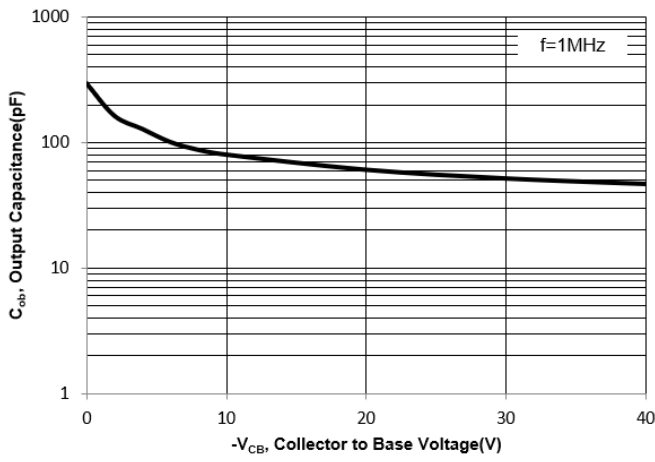
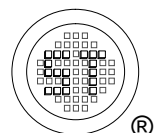
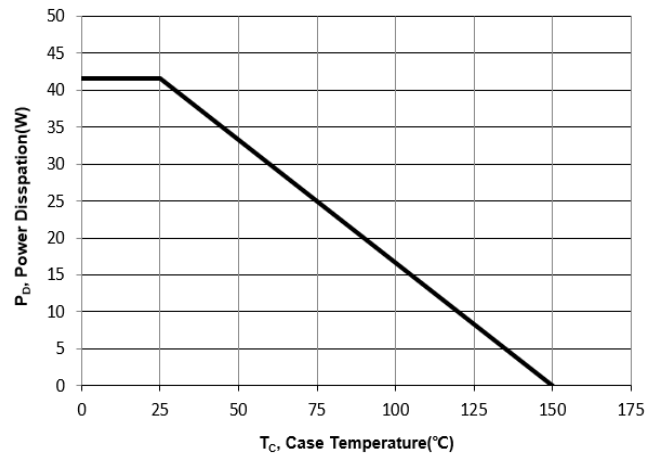


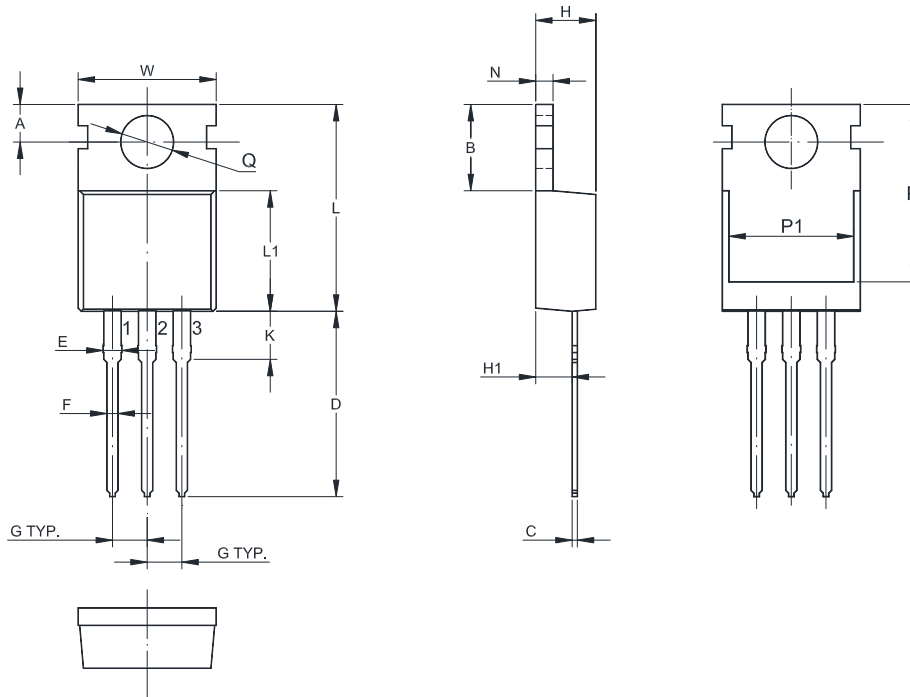
Fig. 8 Power Derating Curve



# TIP42C

Package Outline Dimensions (Units: mm)

TO-220FB



UNIT	A	B	C	D	E	F	G	W	H	H1	K	L	L1	N
mm	2.9	6.8	0.7	15	1.5	0.9	2.54	10.2	4.7	2.5	3.1	16.8	9.4	1.4
	2.7	6.4	0.3	11	1.1	0.7	TYP	9.8	4.3	2.2	2.7	14.8	9.0	1.2

UNIT	P	P1	Q
mm	13.3	8.2	3.7
	12.7	7.6	3.5

## Marking information

" TIP42C " = Part No.

" \*\*\*\*\* " = Date Code Marking

Font type: Arial

