

Small Signal Product

TO-92 NPN Bipolar Transistor

FEATURES

- The transistor is subdivided into four groups according to its DC current gain: O, Y, GR, BL
- Pb free and RoHS compliant

MECHANICAL DATA

- Case: TO-92 small outline plastic package
- High temperature soldering guaranteed: 260°C/10s
- Weight: 195mg (approximately)

APPLICATION

- General purpose switching and AF amplifier application



1. Emitter
2. Collector
3. Base



TO-92

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T _A =25°C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Collector Power Dissipation	P _C	0.5	W
Collector-Base Voltage	V _{CBO}	60	V
Collector-Emitter Voltage	V _{CEO}	50	V
Emitter-Base Voltage	V _{EBO}	5	V
Collector Current	I _C	0.15	A
Thermal Resistance From Junction to Ambient	R _{θJA}	250	°C/W
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to + 150	°C

PARAMETER	SYMBOL	MIN	MAX	UNIT
Collector Cut-off Current V _{CB} = 60V, I _E = 0	I _{CBO}	-	0.1	μA
Emitter Cut-off Current V _{EB} = 5V, I _C = 0	I _{EBO}	-	0.1	μA
DC Current Gain V _{CE} = 6V, I _C = 2mA V _{CE} = 6V, I _C = 150mA	h _{FE(1)}	70	700	
	h _{FE(2)}	25		
Collector-Emitter Saturation Voltage I _C = 100mA, I _B =10mA	V _{CE(sat)}		0.25	V
Base-Emitter Saturation Voltage I _C = 100mA, I _B =10mA	V _{BE(sat)}		1	V
Transition Frequency V _{CE} = 10V, I _C =1mA	f _T	80		MHz
Collector Output Capacitance V _{CB} = 10V, I _E =0, f=1MHz	C _{ob}		3.5	pF

CLASSIFIATION OF h_{FE}

RANK	O	Y	GR	BL
RANGE	70-140	120-240	200-400	300-700

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RATINGS AND CHARACTERISTICS CURVES

($T_A=25^\circ\text{C}$ unless otherwise noted)

FIG.1 Static Characteristic

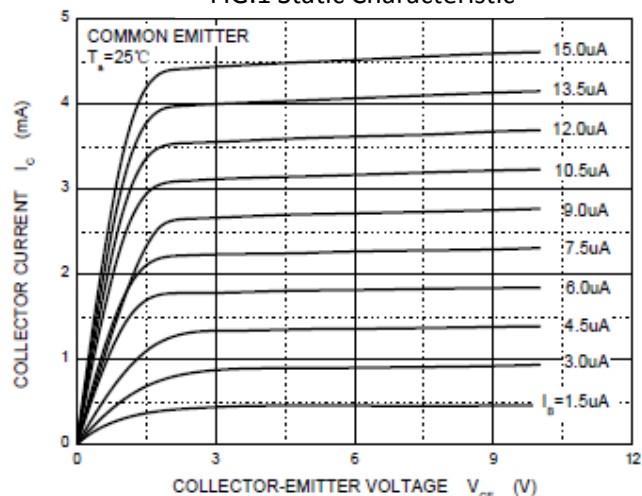


FIG.2 h_{FE} vs. I_C

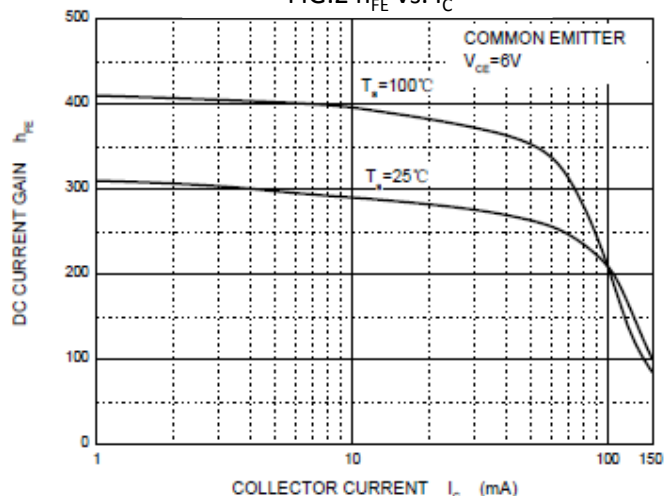


FIG.3 $V_{CE(sat)}$ vs. I_C

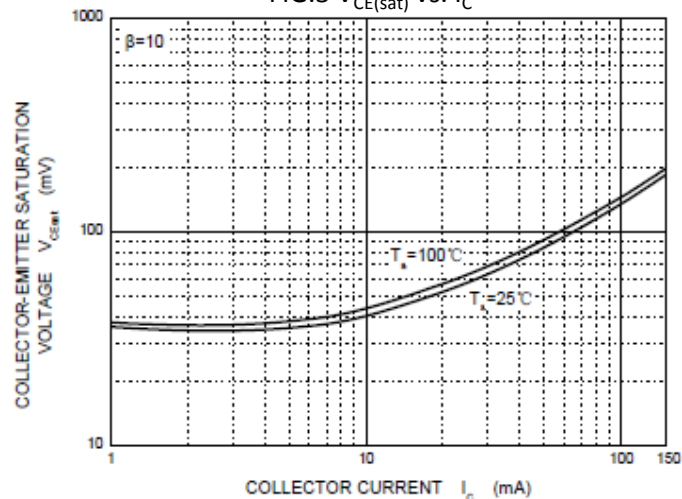


FIG.4 $V_{BE(sat)}$ vs. I_C

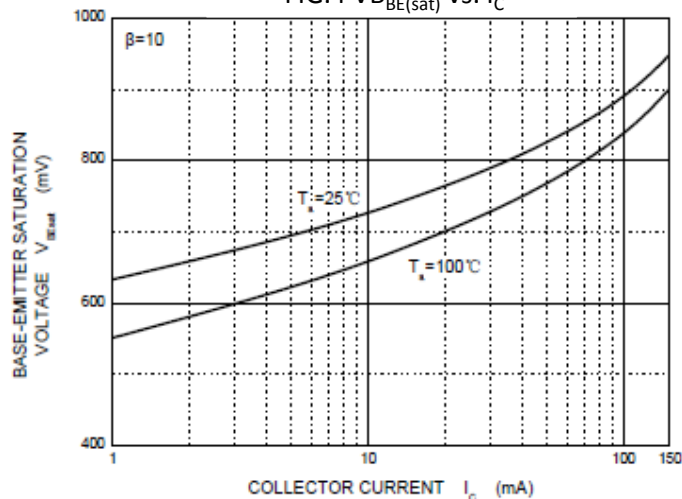


FIG.5 C_{ob} / C_{ib} vs. V_{CB} / V_{Eb}

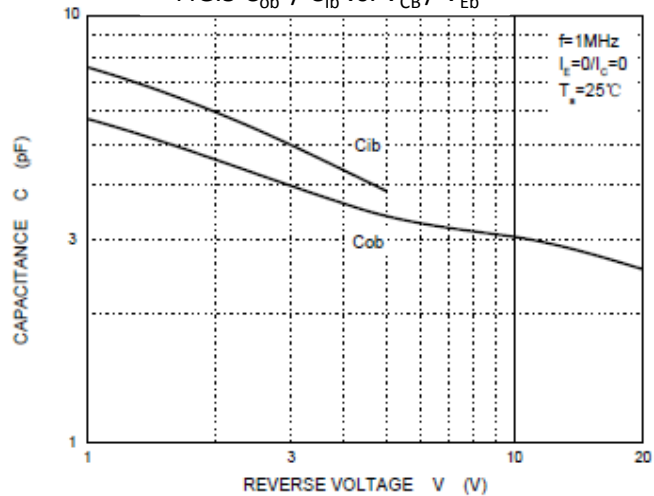
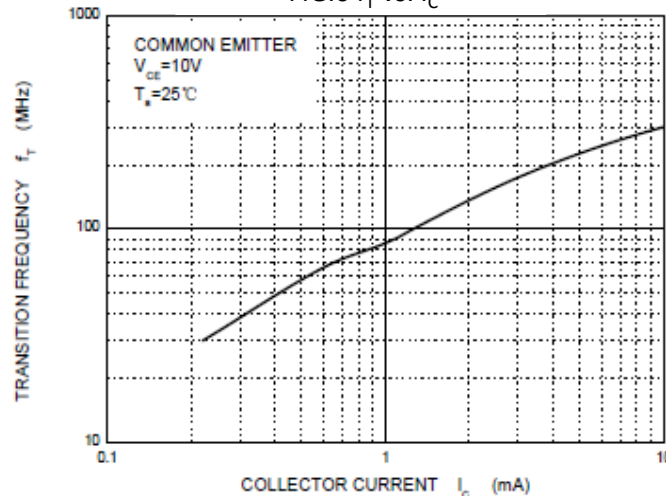


FIG.6 f_T vs. I_C



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ORDERING INFORMATION						
PART NO.	MANUFACTURE CODE	PACKING CODE	GREEN COMPOUND CODE	PACKAGE	PACKING	MARKING
KTC3198-xx (Note2)	(Note1)	A1	G	TO-92	4K / Ammo	KTC 3198 xx021 (Note3)
		B1	G	TO-92	5K / Bulk	
		A2	G	TO-92	2K / Ammo	
		B2	G	TO-92	10K / Bulk	
KTC3198-xx (Note2)	B0	A1	G	TO-92	4K / Ammo	KTC 3198 xx021 (Note3)
KTC3198-xx (Note2)	B0	B1	G	TO-92	5K / Bulk	
KTC3198-xx (Note2)	M0	A2	G	TO-92	2K / Ammo	
KTC3198-xx (Note2)	M0	B2	G	TO-92	10K / Bulk	

Note1: Indicator of manufacturing site for manufacture special control, if empty means no special control requirement

Note2: "xx" means device code of "O", "Y", "GR", "BL"

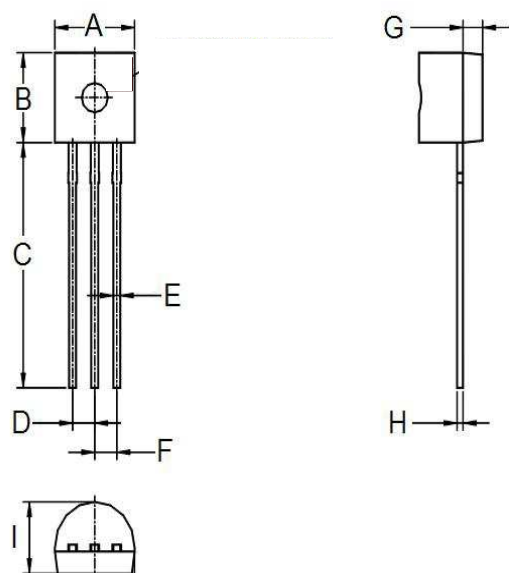
Note3: "MARKING" should follow the "PART NO.", for example, if "PART NO." is KTC3198-O, which

"MARKING" is KTC
 3198
 O021

EXAMPLE					
PREFERRED P/N	PART NO.	MANUFACTURE CODE	PACKING CODE	GREEN COMPOUND CODE	DESCRIPTION
KTC3198-O A1G	KTC3198-O		A1	G	Green compound
KTC3198-O-B0 A1G	KTC3198-O	B0	A1	G	Green compound
KTC3198-O-B0 B1G	KTC3198-O	B0	B1	G	Green compound
KTC3198-O-M0 A2G	KTC3198-O	M0	A2	G	Green compound
KTC3198-O-M0 B2G	KTC3198-O	M0	B2	G	Green compound

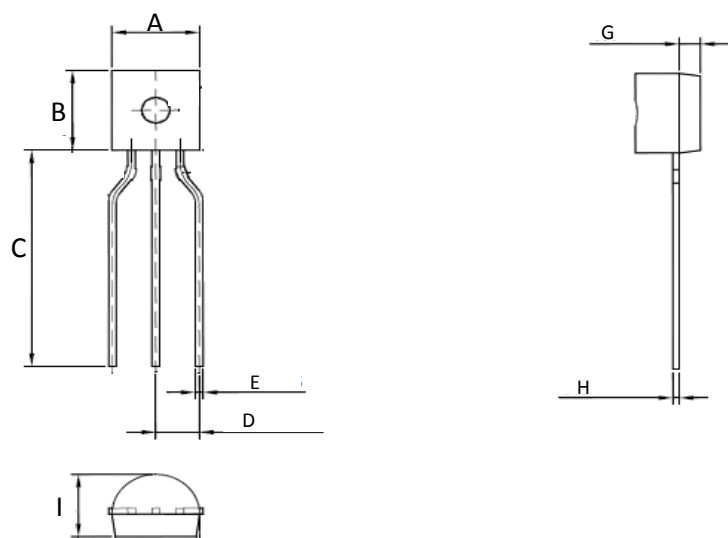
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PACKAGE OUTLINE DIMENSIONS
TO-92 Bulk



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	4.30	4.70	0.169	0.185
B	4.30	4.70	0.169	0.185
C	12.50	14.50	0.492	0.571
D	1.17	1.37	0.046	0.054
E	0.35	0.55	0.014	0.022
F	1.17	1.37	0.046	0.054
G	0.59	1.20	0.023	0.047
H	0.29	0.51	0.011	0.020
I	3.30	3.70	0.130	0.146

TO-92 Ammo



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	4.30	4.70	0.169	0.185
B	4.30	4.70	0.169	0.185
C	12.50	-	0.492	-
D	2.20	2.80	0.087	0.110
E	0.35	0.55	0.014	0.022
G	0.59	1.20	0.023	0.047
H	0.29	0.51	0.011	0.020
I	3.30	3.70	0.130	0.146

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