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

Pb-Free

RoHS COMPLIANT

1. Emitter
2. Collector
3. Base

TO-92

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

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T_A=25℃ 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	$R_{\theta JA}$	250	℃/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	$h_{FE(1)}$	70	700	
	V_{CE}= 6V, I_C= 150mA	$h_{FE(2)}$	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

CLASSIFIACTION OF h_{FE}

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

RATINGS AND CHARACTERISTICS CURVES

(T_A=25℃ unless otherwise noted)

FIG.1 Static Characteristic

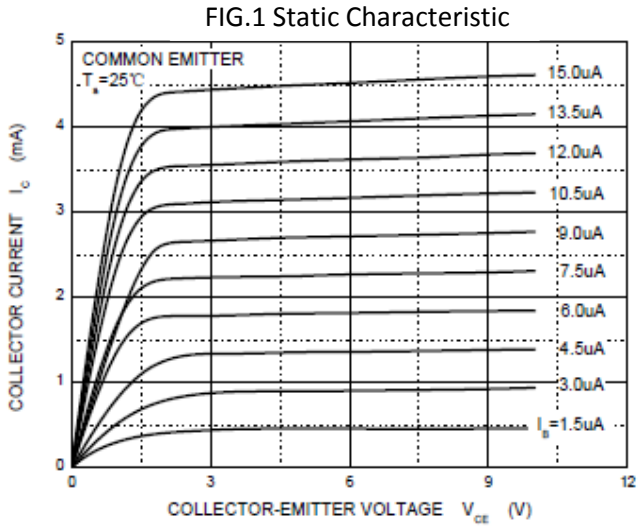


FIG.2 h_{FE} vs. I_C

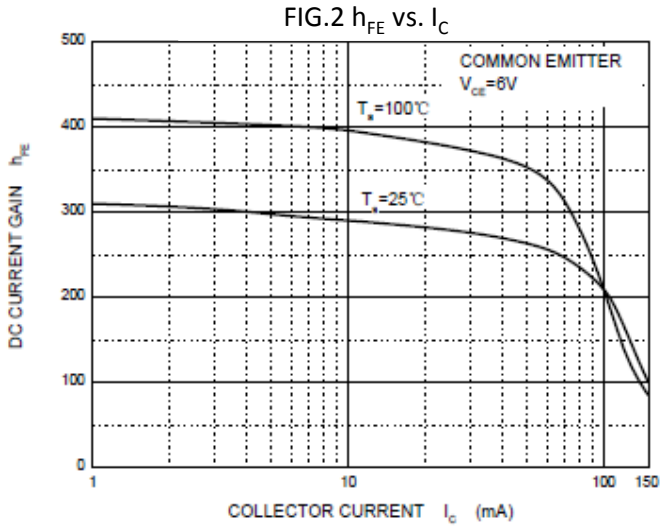


FIG.3 $V_{CE(sat)}$ vs. I_C

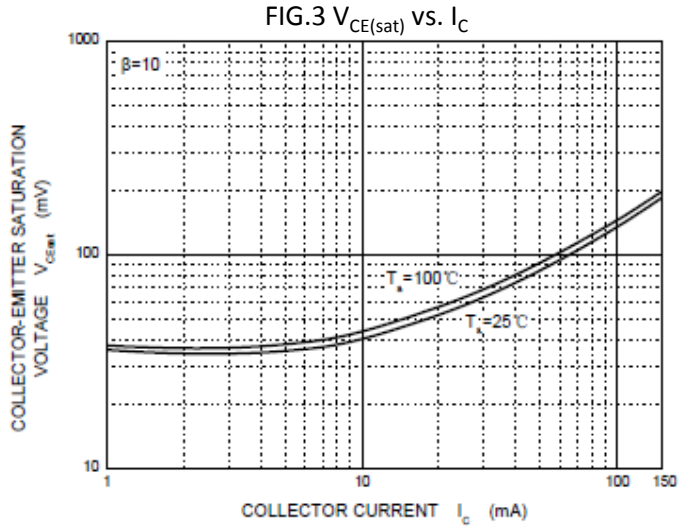


FIG.4 $VB_{BE(sat)}$ vs. I_C

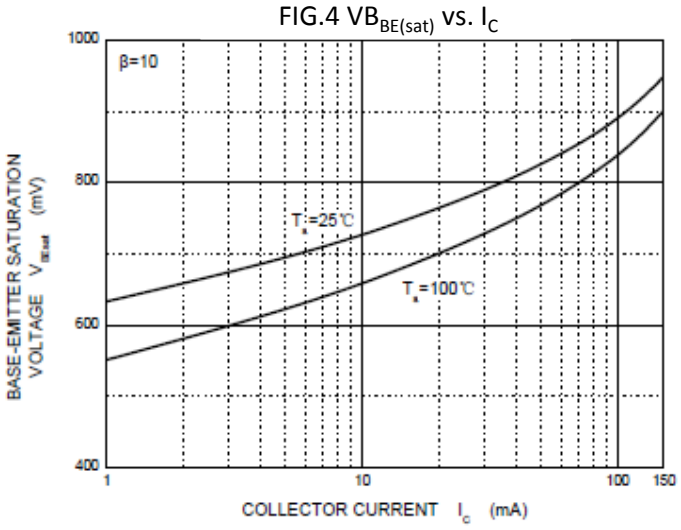


FIG.5 C_{ob} / C_{Ib} vs. V_{CB} / V_{Eb}

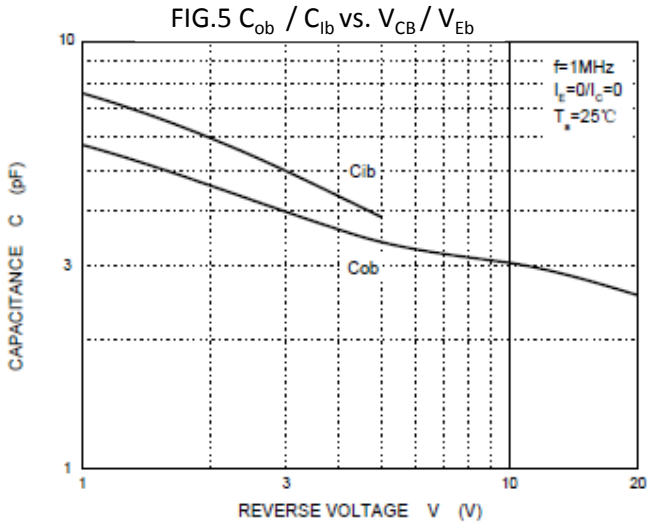
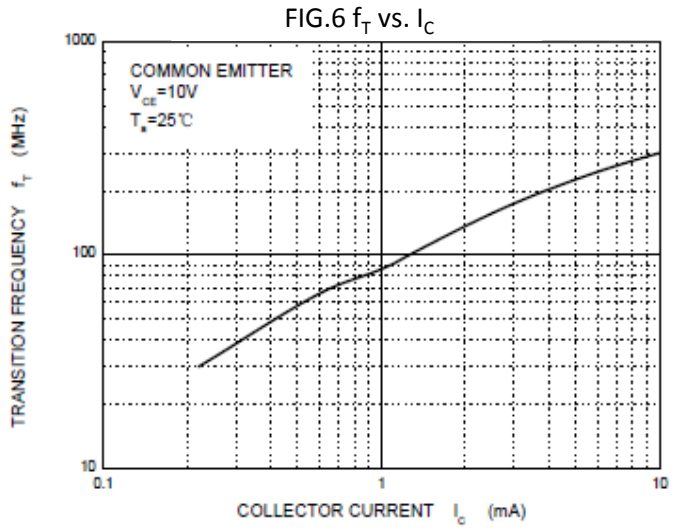


FIG.6 f_T vs. I_C



Small Signal Product

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"

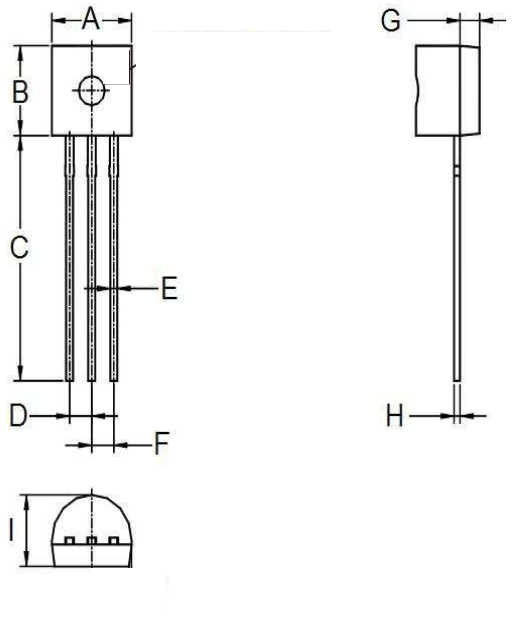
Note3: "MARKING" should follow the "PART NO.", for example, if "PART NO." is KTC3198-O, which

"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

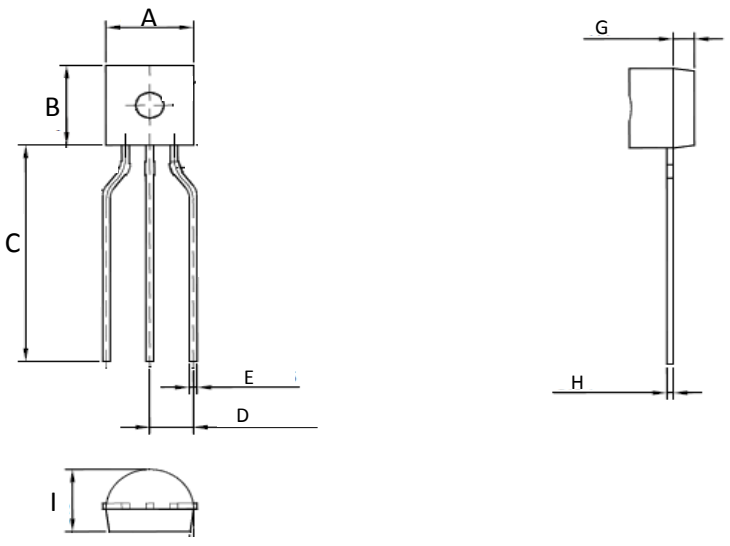
PACKAGE OUTLINE DIMENSIONS

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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