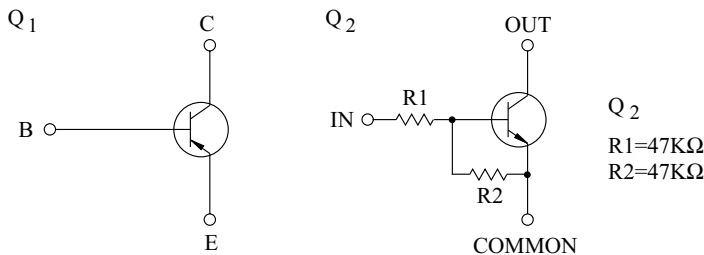


SWITCHING APPLICATION.  
INTERFACE CIRCUIT AND DRIVER CIRCUIT APPLICATION.

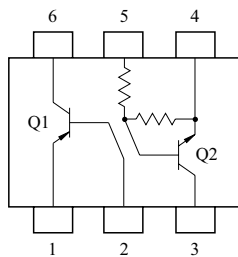
#### FEATURES

- Including two devices in TES6.  
(Thin Extreme Super mini type with 6 leads.)
- With Built-in bias resistors.
- Simplify circuit design.
- Reduce a quantity of parts and manufacturing process.

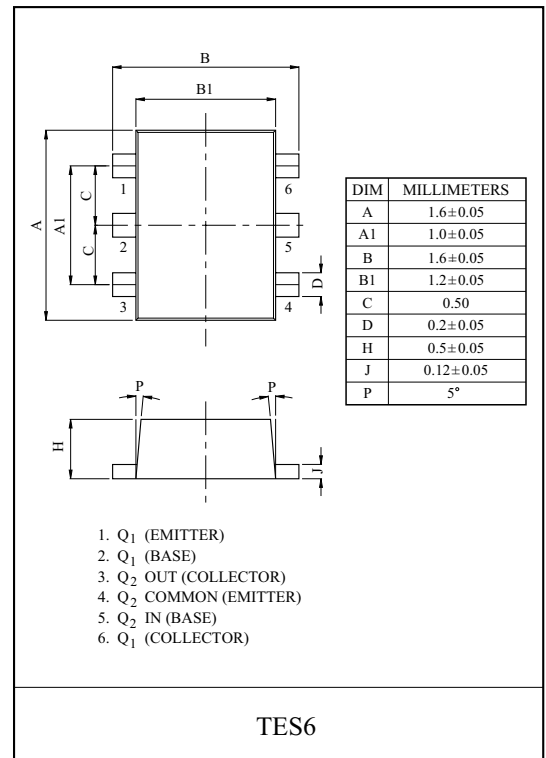
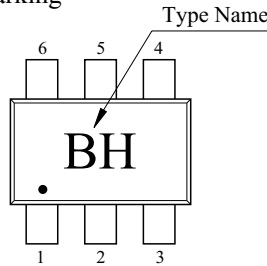
#### EQUIVALENT CIRCUIT



#### EQUIVALENT CIRCUIT (TOP VIEW)



#### Marking



#### Q1 MAXIMUM RATING (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V <sub>CBO</sub>	-15	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-12	V
Emitter-Base Voltage	V <sub>EBO</sub>	-6	V
Collector Current	I <sub>C</sub>	-500	mA
	I <sub>CP</sub> *	-1	A

\* Single pulse Pw=1mS.

#### Q2 MAXIMUM RATING (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Output Voltage	V <sub>O</sub>	50	V
Input Voltage	V <sub>I</sub>	40, -10	V
Output Current	I <sub>O</sub>	100	mA

#### Q1, Q2 MAXIMUM RATING (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Dissipation	P <sub>D</sub> *	200	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55 ~ 150	°C

\* Total Raing.

## Q1 ELECTRICAL CHARACTERISTICS (Ta=25 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB}=-15V, I_E=0$	-	-	-100	nA
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_E=-10\mu A$	-15	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1mA$	-12	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu A$	-6	-	-	V
DC Current Gain	$h_{FE}$	$V_{CE}=-2V, I_C=-10mA$	270	-	680	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-200mA, I_B=-10mA$	-	-100	-250	mV
Transition Frequency	$f_T$	$V_{CE}=-2V, I_C=-10mA, f_1=100MHz$	-	260	-	MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB}=-10V, I_E=0, f=1MHz$	-	6.5	-	pF

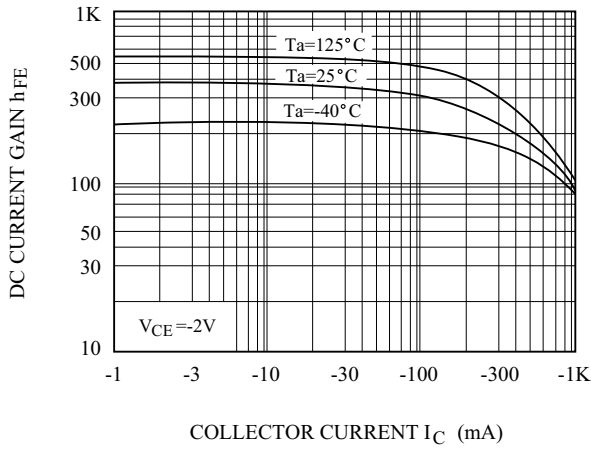
## Q2 ELECTRICAL CHARACTERISTICS (Ta=25 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT.
Output Cut-off Current	$I_{O(OFF)}$	$V_O=50V, V_I=0$	-	-	500	nA
DC Current Gain	$G_I$	$V_O=5V, I_O=10mA$	20	-	-	
Output Voltage	$V_{O(ON)}$	$I_O=10mA, I_I=0.5mA$	-	0.1	0.3	V
Input Voltage (ON)	$V_{I(ON)}$	$V_O=0.2V, I_O=5mA$	-	2.8	5.0	V
Input Voltage (OFF)	$V_{I(OFF)}$	$V_O=5V, I_O=0.1mA$	1.0	1.2	-	V
Transition Frequency	$f_T^*$	$V_O=10V, I_O=5mA$	-	200	-	MHz
Input Current	$I_I$	$V_I=5V$	-	-	0.18	mA

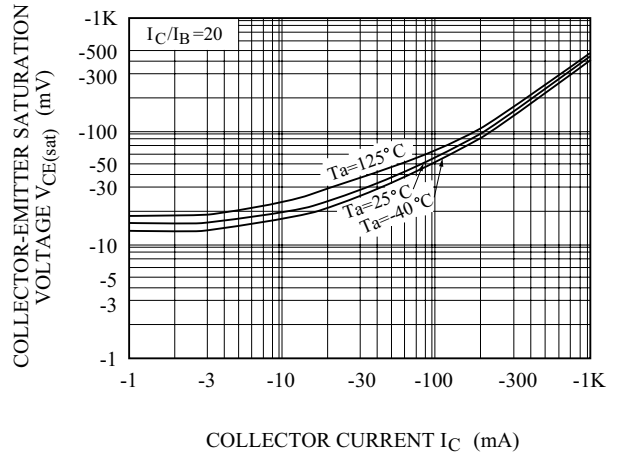
Note : \* Characteristic of Transistor Only.

Q<sub>1</sub> (PNP TRANSISTOR)

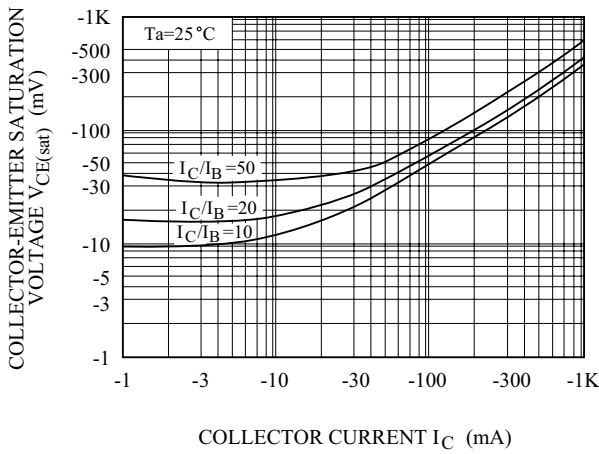
$h_{FE} - I_C$



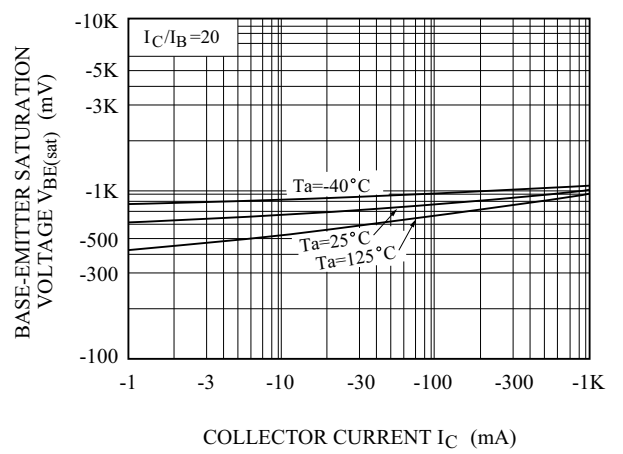
$V_{CE(sat)} - I_C$



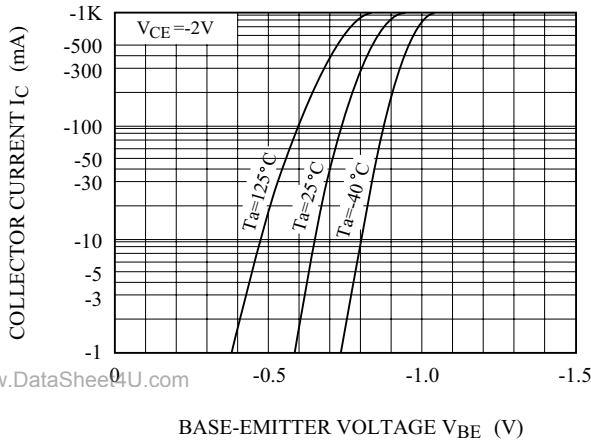
$V_{CE(sat)} - I_C$



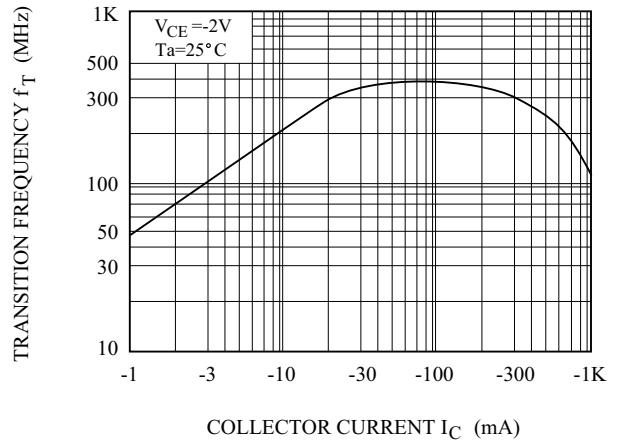
$V_{BE(sat)} - I_C$



$I_C - V_{BE}$

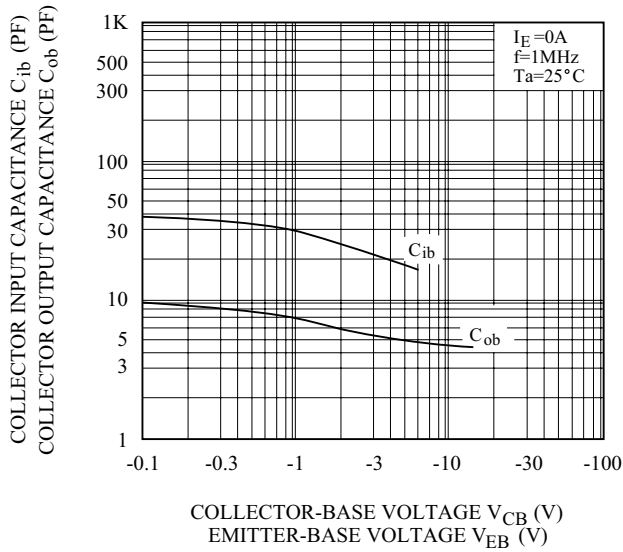


$f_T - I_C$

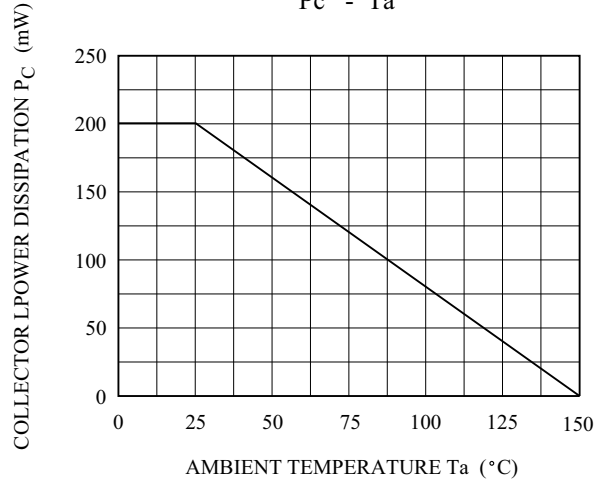


Q<sub>1</sub> (PNP TRANSISTOR)

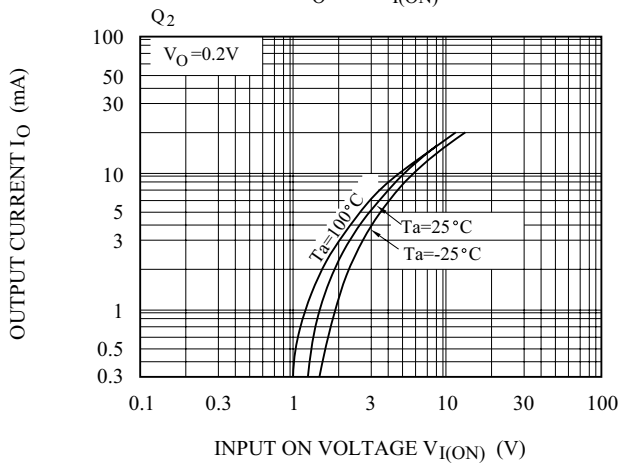
$C_{ob} - V_{CB}$ ,  $C_{ib} - V_{EB}$



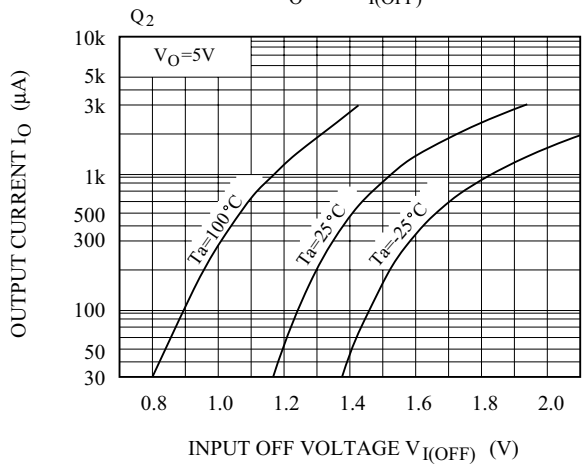
$P_c - T_a$



$I_O - V_{I(ON)}$



$I_O - V_{I(OFF)}$



$G_I - I_O$

