

# 2SC503

# 2SC504

SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

9097250 TOSHIBA (DISCRETE/OPTO)

56C 07409

D T-35-15

Unit in mm

HIGH FREQUENCY AMPLIFIER APPLICATIONS.

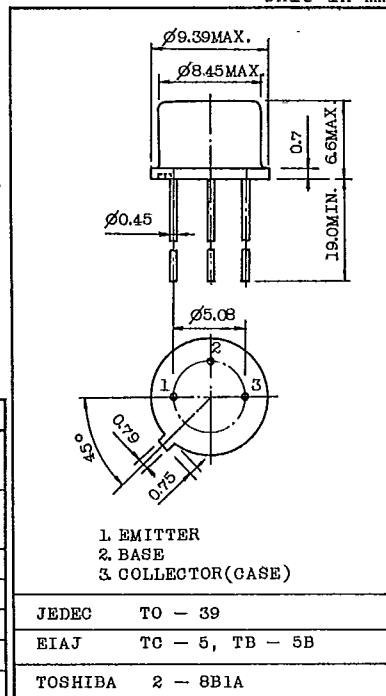
HIGH SPEED SWITCHING APPLICATIONS.

## FEATURES:

- High Transition Frequency :  $f_T=80\text{MHz}$  (Typ.)
- High Breakdown Voltage
  - :  $V_{CE0}=80\text{V}$  (2SC503)
  - :  $V_{CE0}=60\text{V}$  (2SC504)
- Complementary to 2SA503 and 2SA504.

MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ )

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage	2SC503	$V_{CB0}$	100	V
	2SC504		80	
Collector-Emitter Voltage	2SC503	$V_{CE0}$	80	V
	2SC504		60	
Emitter-Base Voltage		$V_{EB0}$	5	V
Collector Current		$I_C$	600	mA
Base Current		$I_B$	100	mA
Collector Power Dissipation	$T_a=25^\circ\text{C}$	PC	800	mW
	$T_c=25^\circ\text{C}$		6	
Junction Temperature		$T_j$	175	$^\circ\text{C}$
Storage Temperature Range		$T_{stg}$	-65~175	$^\circ\text{C}$



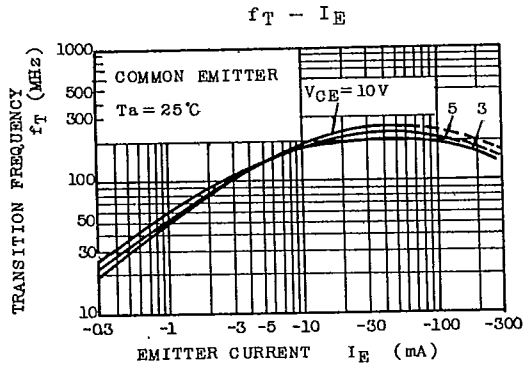
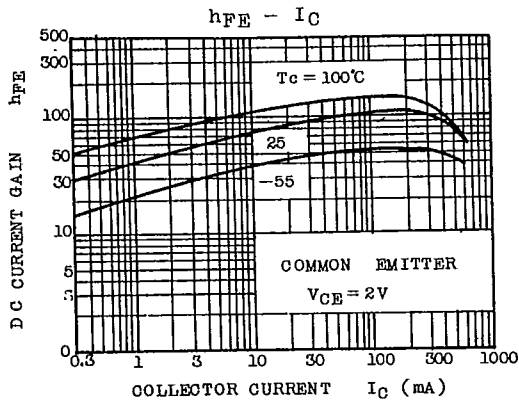
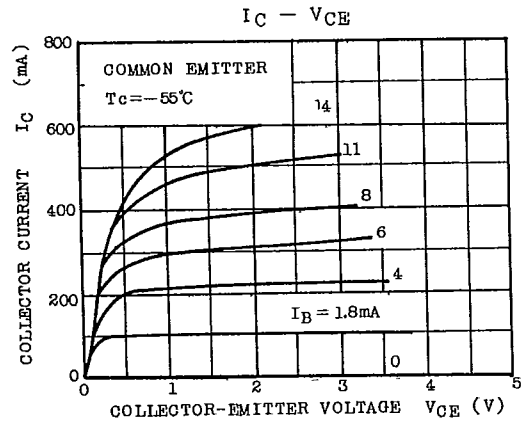
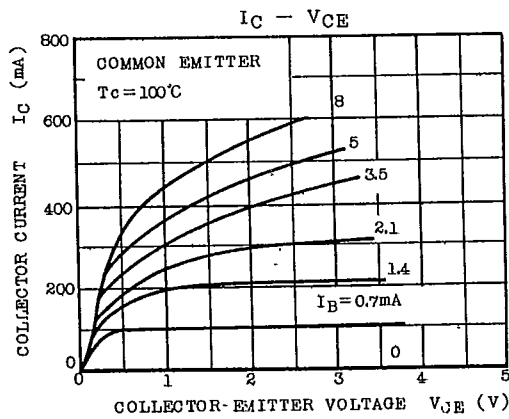
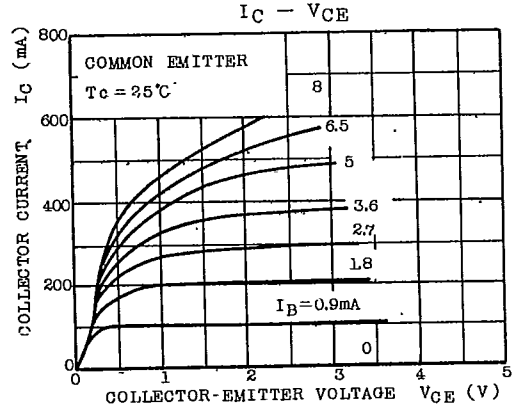
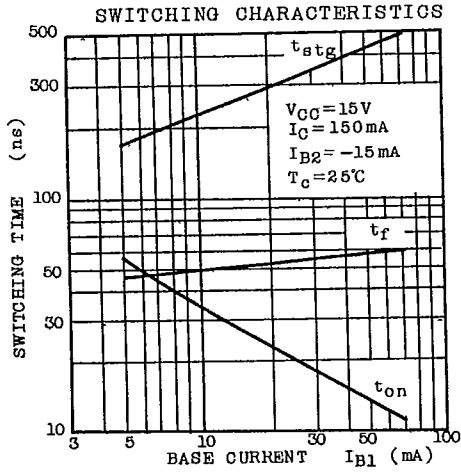
Weight : 1.13g

ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ )

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	2SC503	$I_{CBO}$	$V_{CB}=80\text{V}, I_E=0$	-	-	0.5	$\mu\text{A}$
	2SC504		$V_{CB}=60\text{V}, I_E=0$	-	-	0.5	
Emitter Cut-off Current		$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$	-	-	1.0	$\mu\text{A}$
DC Current Gain		$h_{FE}$ (Note)	$V_{CE}=2\text{V}, I_C=150\text{mA}$	30	-	300	
Saturation Voltage	Collector-Emitter	$V_{CE(sat)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	-	0.06	0.5	V
	Base-Emitter	$V_{BE(sat)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	-	0.8	1.5	
Transition Frequency		$f_T$	$V_{CE}=2\text{V}, I_C=150\text{mA}$	50	80	-	MHz
Collector Output Capacitance		$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	-	13	30	pF
Base Intrinsic Resistance		$r_{bb'}$	$V_{CE}=10\text{V}, I_E=-1\text{mA}, f=30\text{MHz}$	-	16	25	$\Omega$
Switching Time	Turn-on Time	$t_{on}$		-	40	-	ns
	Storage Time	$t_{stg}$		-	450	-	
	Fall Time	$t_f$		-	100	-	

Note:  $h_{FE}$  Classification 0 : 30~90, Y : 50~150, GR : 100~300

TOSHIBA CORPORATION



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