

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE

# 2SC3964

SWITCHING APPLICATIONS

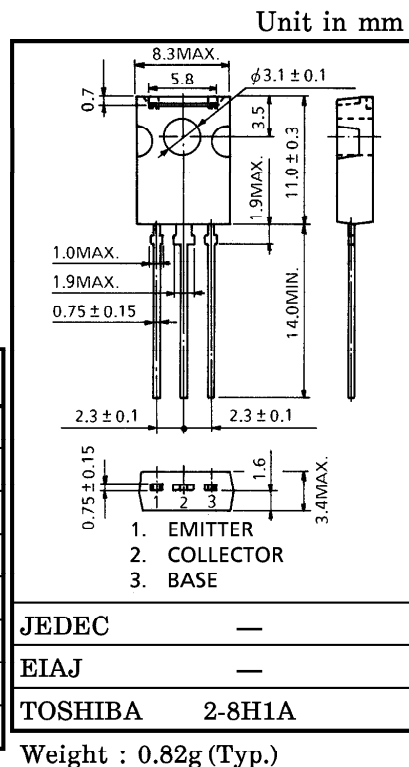
SOLENOID DRIVE APPLICATIONS

TEMPERATURE COMPENSATED FOR AUDIO AMPLIFIER OUTPUT STAGE

- High DC Current Gain :  $h_{FE} = 500$  (Min.)
- Low Saturation Voltage :  $V_{CE(sat)} = 0.5V$  (Max.)

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	40	V
Collector-Emitter Voltage	$V_{CEO}$	40	V
Emitter-Base Voltage	$V_{EBO}$	7	V
Collector Current	$I_C$	2	A
Base Current	$I_B$	0.5	A
Collector Power Dissipation	$P_C$	1.5	W
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ C$

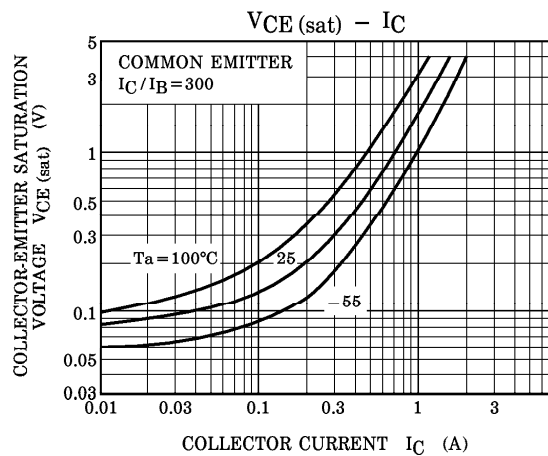
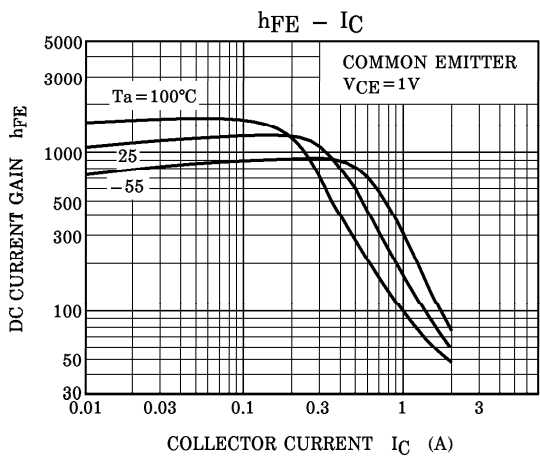
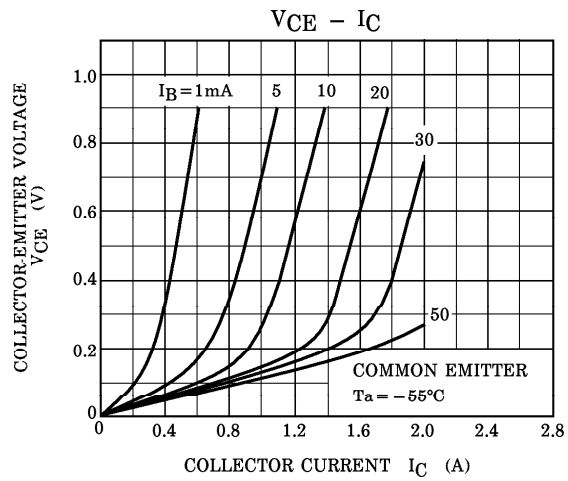
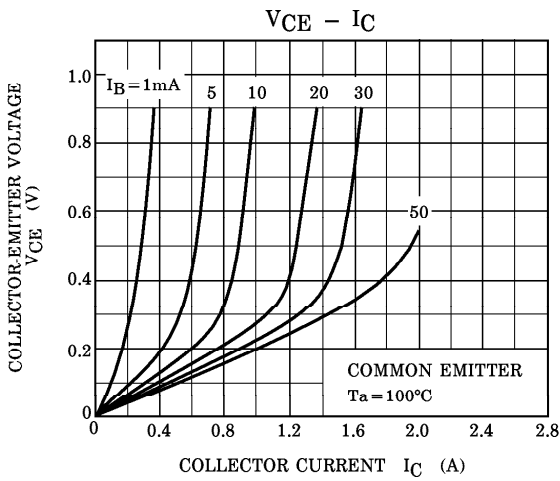
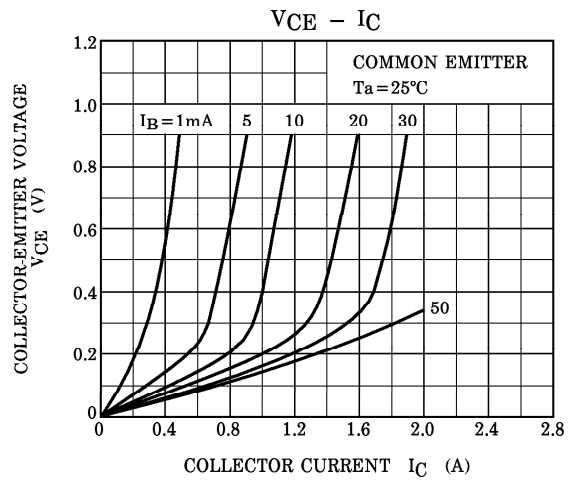
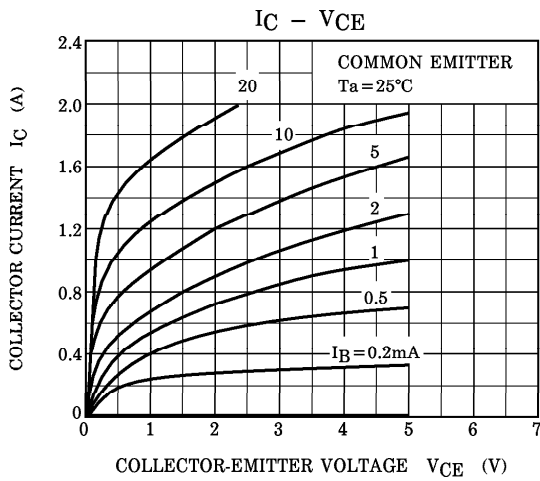


ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 40V, I_E = 0$	—	—	10	$\mu A$	
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 7V, I_C = 0$	—	—	1	$\mu A$	
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10mA, I_B = 0$	40	—	—	V	
DC Current Gain	$h_{FE}$	$V_{CE} = 1V, I_C = 400mA$	500	—	—		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 300mA, I_B = 1mA$	—	0.3	0.5	V	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 300mA, I_B = 1mA$	—	—	1.1	V	
Transition Frequency	$f_T$	$V_{CE} = 2V, I_C = 100mA$	—	220	—	MHz	
Collector Output Capacitance	$C_{ob}$	$V_{CB} = 10V, I_E = 0, f = 1MHz$	—	20	—	pF	
Switching Time	Turn-on Time	$t_{on}$			—	1.0	—
	Storage Time	$t_{stg}$			—	3.0	—
	Fall Time	$t_f$			—	1.2	—

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