2SC3299 — SILICON NPN EPITAXIAL TYPE

INDUSTRIAL APPLICATIONS

HIGH CURRENT SWITCHING APPLICATIONS.

FEATURES:

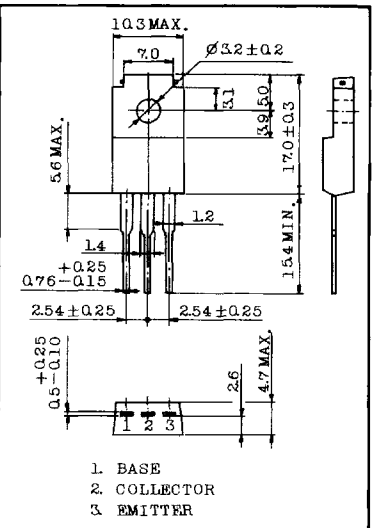
. Low Collector Saturation Voltage

: $V_{CE(sat)}$=0.4V(Max.) at I_C=3A

. High Speed Switching Time : t_{stg}=1.0μs(Typ.)

. Complementary to 2SA1307

Unit in mm



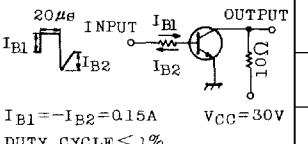
JEDEC	—
EIAJ	—
TOSHIBA	2-10L1A

Weight : 2.1g

MAXIMUM RATINGS (Ta=25°C)

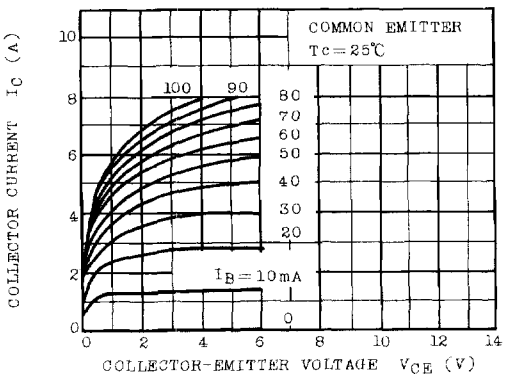
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	60	V
Collector-Emitter Voltage		V_{CEO}	50	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current		I_C	5	A
Base Current		I_B	1	A
Collector Power Dissipation	Ta=25°C	P_C	2.0	W
	Tc=25°C		20	
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55 ~ 150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

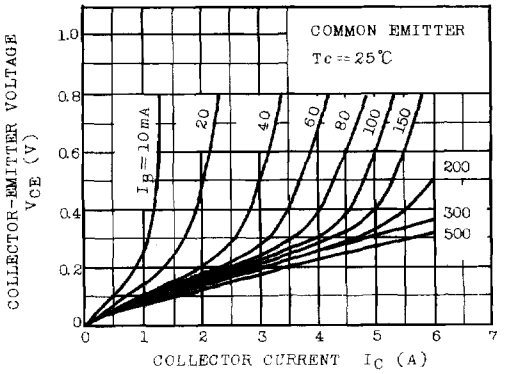
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB}=50V, I_E=0	-	-	1	μA
Emitter Cut-off Current		I_{EBO}	V_{EB}=5V, I_C=0	-	-	1	μA
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	I_C=10mA, I_B=0	50	-	-	V
DC Current Gain		$h_{FE(1)}$ (Note)	V_{CE}=1V, I_C=1A	70	-	240	
		$h_{FE(2)}$	V_{CE}=1V, I_C=3A	30	-	-	
Saturation Voltage	Collector-Emitter	$V_{CE(sat)}$	I_C=3A, I_B=0.15A	-	0.2	0.4	V
	Base-Emitter	$V_{BE(sat)}$	I_C=3A, I_B=0.15A	-	0.9	1.2	
Transition Frequency		f_T	V_{CE}=4V, I_C=1A	-	120	-	MHz
Collector Output Capacitance		C_{ob}	V_{CB}=10V, I_E=0, f=1MHz	-	80	-	pF
Switching Time	Turn-on Time	t_{on}	 I_{B1}=−I_{B2}=0.15A, V_{CC}=30V, DUTY CYCLE≤1%	-	0.1	-	μs
	Storage Time	t_{stg}		-	1.0	-	
	Fall Time	t_f		-	0.1	-	

Note : $h_{FE(1)}$ Classification O : 70~140, Y : 120~240

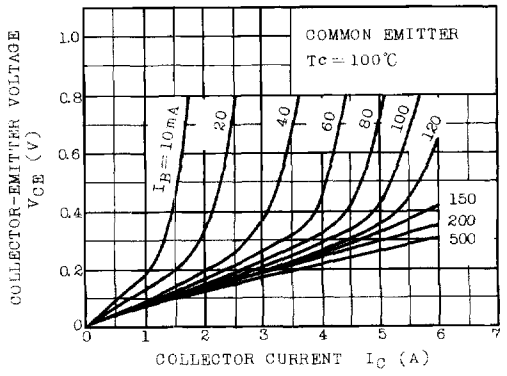
$I_C - V_{CE}$



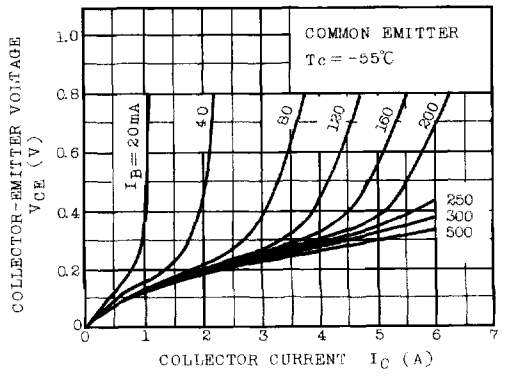
$V_{CE} - I_C$



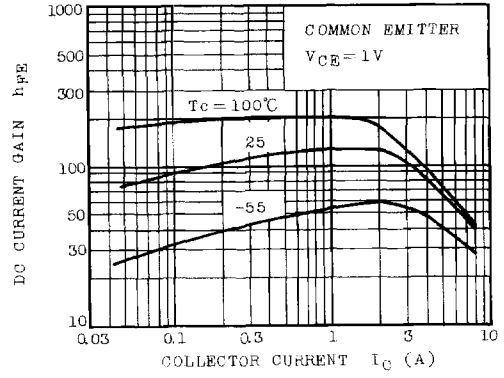
$V_{CE} - I_C$



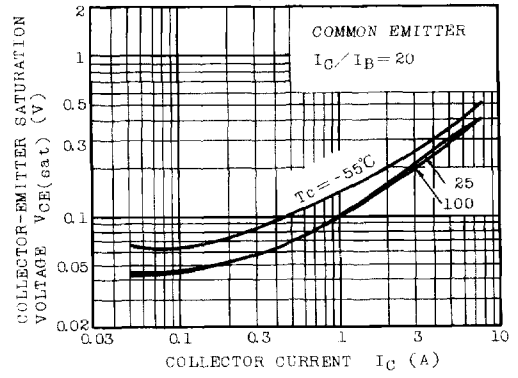
$V_{CE} - I_C$

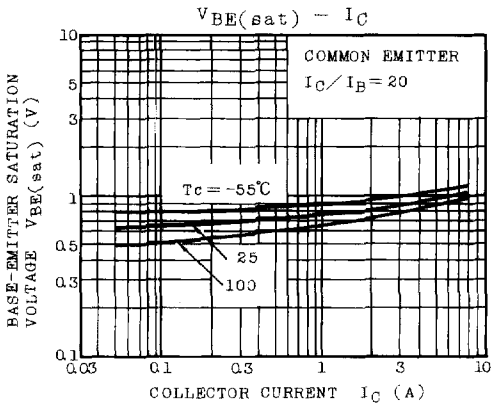


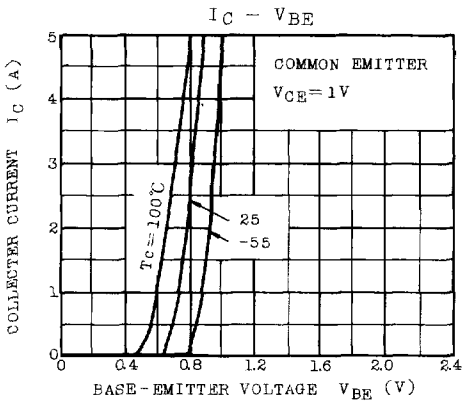
$h_{FE} - I_C$

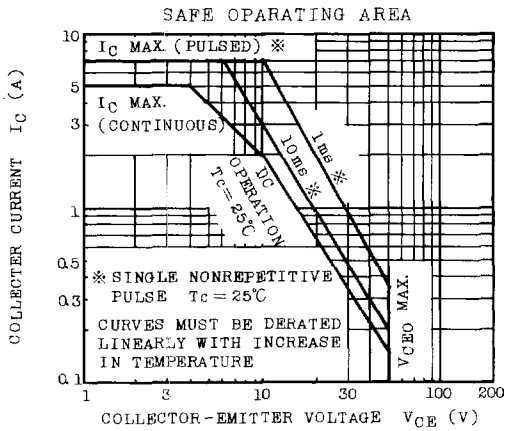


$V_{CE(sat)} - I_C$




VBE(sat) – IC
COMMON EMITTER
IC/IB = 20
Tc = -55℃
25
100
BASE-EMITTER SATURATION VOLTAGE VBE(sat) (V)
COLLECTOR CURRENT IC (A)
10
5
3
1
0.5
0.3
0.1
0.03
0.1
0.3
1
3
10


IC – VBE
COMMON EMITTER
VCE = 1V
Tc = 100℃
25
-55
COLLECTOR CURRENT IC (A)
BASE-EMITTER VOLTAGE VBE (V)
5
4
3
2
1
0
0.4
0.8
1.2
1.6
2.0
2.4


SAFE OPARATING AREA
IC MAX. (PULSED) ※
IC MAX. (CONTINUOUS)
DC OPERATION Tc = 25℃
10ms ※
1ms ※
※ SINGLE NONREPETITIVE PULSE Tc = 25℃
CURVES MUST BE DERATED LINEARLY WITH INCREASE IN TEMPERATURE
VCEO MAX.
COLLECTOR CURRENT IC (A)
COLLECTOR-EMITTER VOLTAGE VCE (V)
10
5
3
1
0.5
0.3
0.1
1
3
10
30
100
200