TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE (DARLINGTON POWER TRANSISTOR)

2SD2387

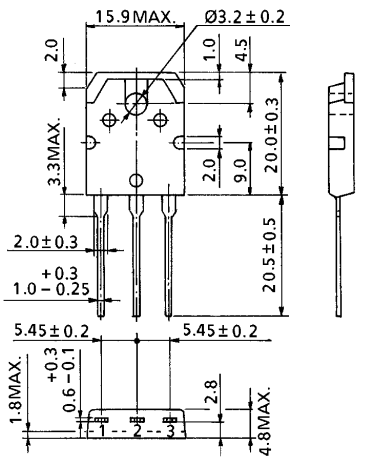
POWER AMPLIFIER APPLICATIONS

Unit in mm

- High Breakdown Voltage : V_{CEO} = 140 V (Min.)
- Complementary to 2SB1558

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	140	V
Collector-Emitter Voltage	V_{CEO}	140	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	8	A
Base Current	I_B	0.1	A
Collector Power Dissipation (Tc = 25°C)	P_C	80	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55~150	°C

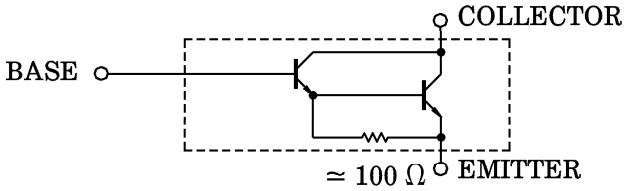


1. BASE
2. COLLECTOR (FIN)
3. EMITTER

JEDEC	—
EIAJ	—
TOSHIBA	2-16C1A

Weight : 4.7 g

EQUIVALENT CIRCUIT



ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	V_{CB} = 140 V, I_E = 0	—	—	5.0	μA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 5 V, I_C = 0	—	—	5.0	μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 50 mA, I_B = 0	140	—	—	V
DC Current Gain	$h_{FE(1)}$ (Note)	V_{CE} = 5 V, I_C = 7 A	5000	—	30000	
	$h_{FE(2)}$	V_{CE} = 5 V, I_C = 12 A	2000	—	—	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 7 A, I_B = 7 mA	—	—	2.5	V
Base-Emitter Voltage	V_{BE}	V_{CE} = 5 V, I_C = 7 A	—	—	3.0	V
Transition Frequency	f_T	V_{CE} = 5 V, I_C = 1 A	—	30	—	MHz
Collector Output Capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	110	—	pF

Note : $h_{FE(1)}$ Classification A : 5000~12000, B : 9000~18000, C : 15000~30000

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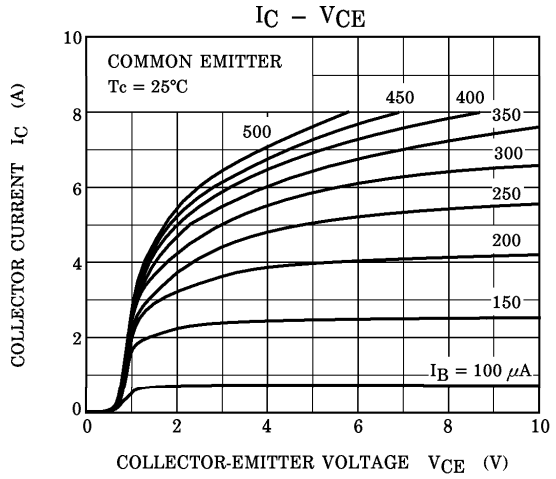
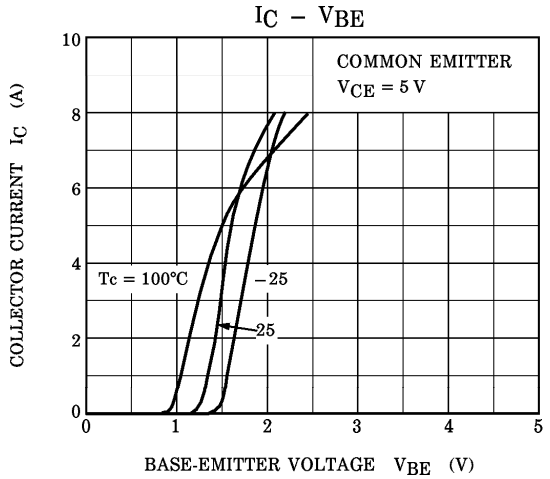
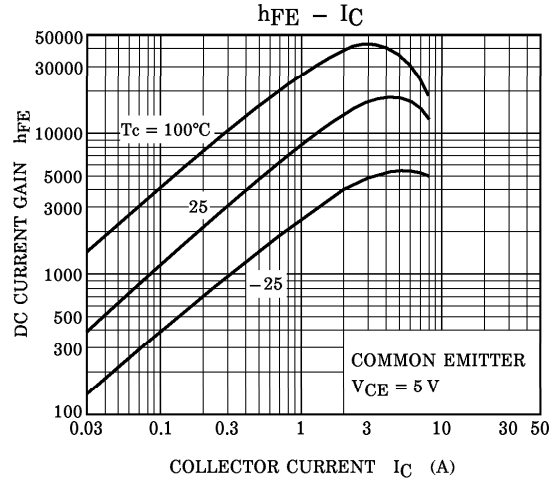
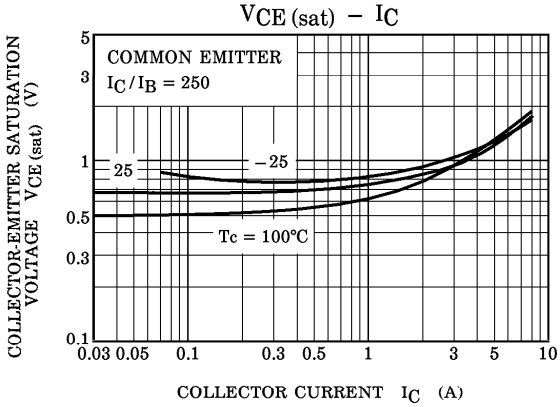
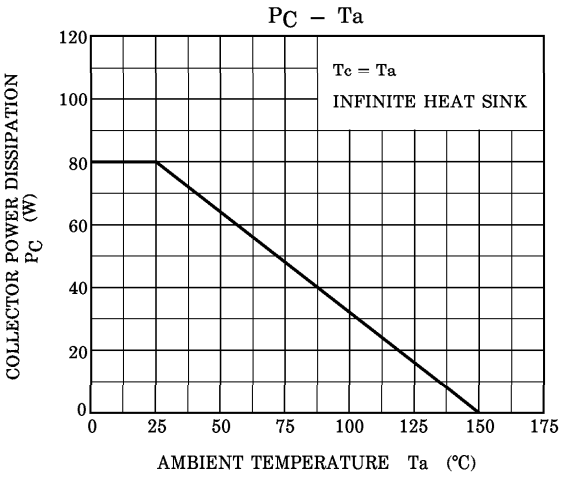
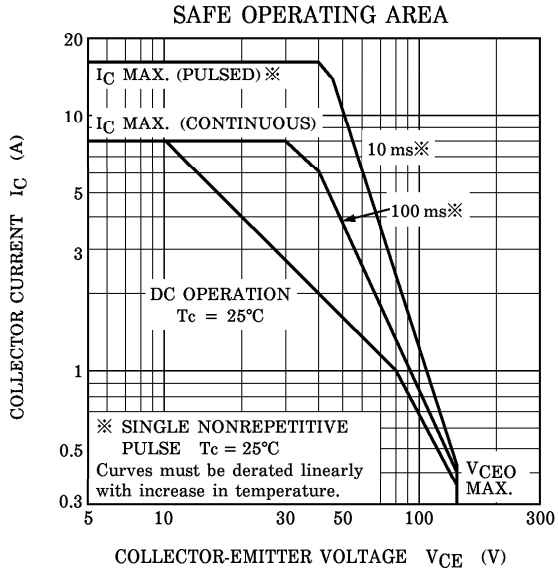

IC – VCE
COMMON EMITTER
Tc = 25°C
450
400
500
350
300
250
200
150
IB = 100 μA
COLLECTOR CURRENT IC (A)
COLLECTOR-EMITTER VOLTAGE VCE (V)


IC – VBE
COMMON EMITTER
VCE = 5 V
Tc = 100°C
−25
25
COLLECTOR CURRENT IC (A)
BASE-EMITTER VOLTAGE VBE (V)


hFE – IC
Tc = 100°C
25
−25
COMMON EMITTER
VCE = 5 V
DC CURRENT GAIN hFE
COLLECTOR CURRENT IC (A)


VCE (sat) – IC
COMMON EMITTER
IC / IB = 250
25
−25
Tc = 100°C
COLLECTOR-EMITTER SATURATION VOLTAGE VCE (sat) (V)
COLLECTOR CURRENT IC (A)


PC – Ta
Tc = Ta
INFINITE HEAT SINK
COLLECTOR POWER DISSIPATION PC (W)
AMBIENT TEMPERATURE Ta (°C)


SAFE OPERATING AREA
IC MAX. (PULSED) ※
IC MAX. (CONTINUOUS)
10 ms※
100 ms※
DC OPERATION
Tc = 25°C
※ SINGLE NONREPETITIVE
PULSE Tc = 25°C
Curves must be derated linearly
with increase in temperature.
VCEO
MAX.
COLLECTOR CURRENT IC (A)
COLLECTOR-EMITTER VOLTAGE VCE (V)