

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

## 2SD2386

## POWER AMPLIFIER APPLICATIONS

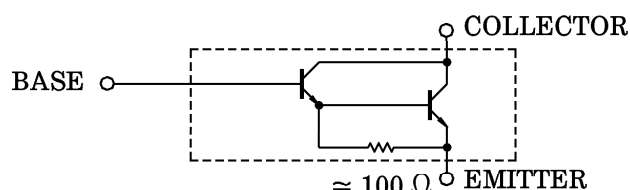
Unit in mm

- High Breakdown Voltage :  $V_{CEO} = 140 \text{ V}$  (Min.)
- Complementary to 2SB1557

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

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	$I_C$	7	A
Base Current	$I_B$	0.1	A
Collector Power Dissipation ( $T_c = 25^\circ\text{C}$ )	$P_C$	70	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	$-55 \sim 150$	$^\circ\text{C}$

## EQUIVALENT CIRCUIT



1. BASE	
2. COLLECTOR (FIN)	
3. EMITTER	
JEDEC	—
EIAJ	—
TOSHIBA	2-16C1A

Weight : 4.7 g

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 140 \text{ V}, I_E = 0$	—	—	5.0	$\mu\text{A}$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 5 \text{ V}, I_C = 0$	—	—	5.0	$\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 50 \text{ mA}, I_B = 0$	140	—	—	V
DC Current Gain	$h_{FE} (1)$ (Note)	$V_{CE} = 5 \text{ V}, I_C = 6 \text{ A}$	5000	—	30000	
	$h_{FE} (2)$	$V_{CE} = 5 \text{ V}, I_C = 10 \text{ A}$	2000	—	—	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 6 \text{ A}, I_B = 6 \text{ mA}$	—	—	2.5	V
Base-Emitter Voltage	$V_{BE}$	$V_{CE} = 5 \text{ V}, I_C = 6 \text{ A}$	—	—	3.0	V
Transition Frequency	$f_T$	$V_{CE} = 5 \text{ V}, I_C = 1 \text{ A}$	—	30	—	MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	—	90	—	pF

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

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