2SD685

SILICON NPN TRIPLE DIFFUSED TYPE
(DARLINGTON POWER)

IGNITER APPLICATIONS.

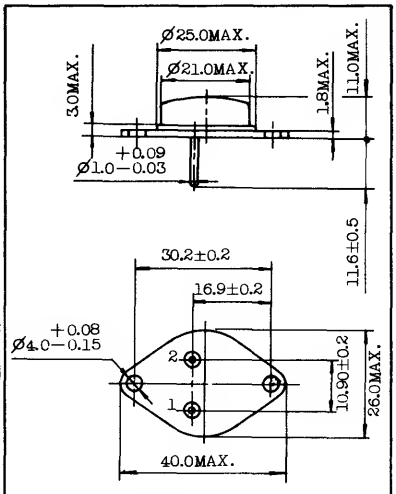
HIGH VOLTAGE AND HIGH POWER SWITCHING APPLICATIONS.

INDUSTRIAL APPLICATIONS

FEATURES :

- High DC Current Gain
  : h_{FE}=400 (Min.)(V_{CE}=2V, I_C=4A)
- High Reverse Energy : $E_{S/B}$=245mJ (Min.)
- Monolithic Construction With Built-In Base-Emitter Shunt Resistor.

Unit in mm



1. BASE
2. EMITTER
COLLECTOR (CASE)

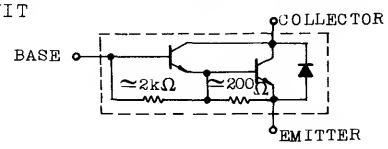
JEDEC	TO — 3
EIAJ	TC — 3, TB — 3
TOSHIBA	2 — 21A 1A

Mounting kit No. AC73
Weight : 12.9g

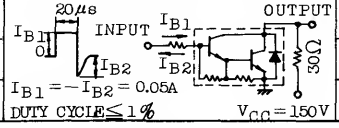
MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	600	V
Collector-Emitter Voltage	V_{CEO}	400	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	10	A
Base Current	I_B	2	A
Collector Power Dissipation (Tc=25°C)	P_C	100	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	-65∿150	°C

EQUIVALENT CIRCUIT

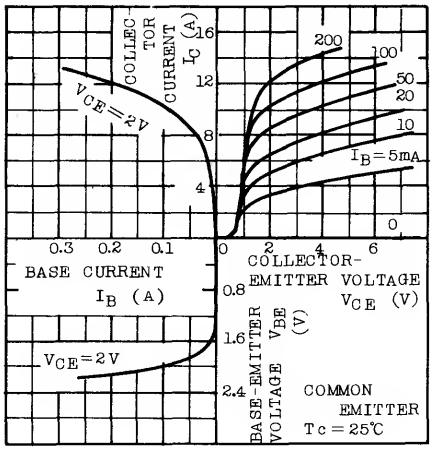


ELECTRICAL CHARACTERISTICS (Ta=25°C)

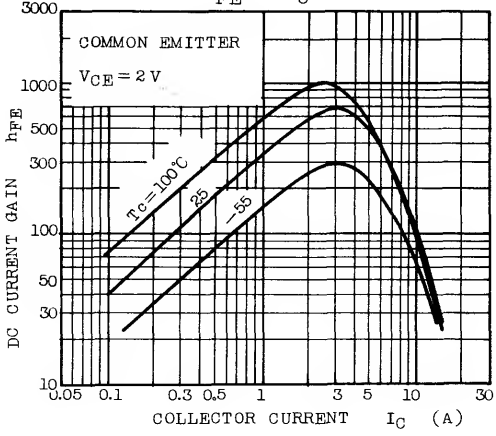
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB}=600V, I_E=0	-	-	0.5	mA
Emitter Cut-off Current		I_{EBO}	V_{EB}=5V, I_C=0	-	-	20	mA
Collector-Emitter Sustaining Voltage		$V_{CEO(sus)}$	I_C=6A, L=10mH	400	-	-	V
Reverse Energy		ES/B	L=10mH, ICP=7A (Note)	245	-	-	mJ
DC Current Gain		$h_{FE(1)}$	V_{CE}=2V, I_C=4A	400	-	-	
		$h_{FE(2)}$	V_{CE}=2V, I_C=8A	100	-	-	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=8A, I_B=0.08A	-	-	2.0	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	I_C=8A, I_B=0.08A	-	-	2.5	V
Emitter-Collector Forward Voltage		V_{ECF}	I_E=10A, I_B=0	-	-	3.0	V
Collector Output Capacitance		C_{ob}	V_{CB}=50V, I_E=0, f=1MHz	-	90	-	pF
Switching Time	Turn-on Time	t_{on}		-	1.0	-	μs
	Storage Time	t_{stg}		-	12	-	
	Fall Time	t_f		-	5	-	

Note: $E_{S/B}$ is defined as the energy at which second breakdown occurs under the base open circuit. $E_{S/B}$=1/2L I_{CP}2, Where L is a series load or leakage inductance and

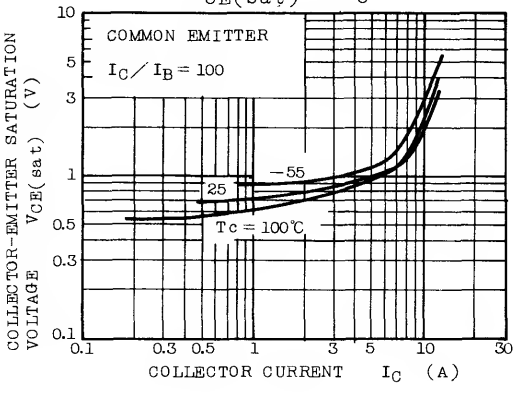
STATIC CHARACTERISTICS



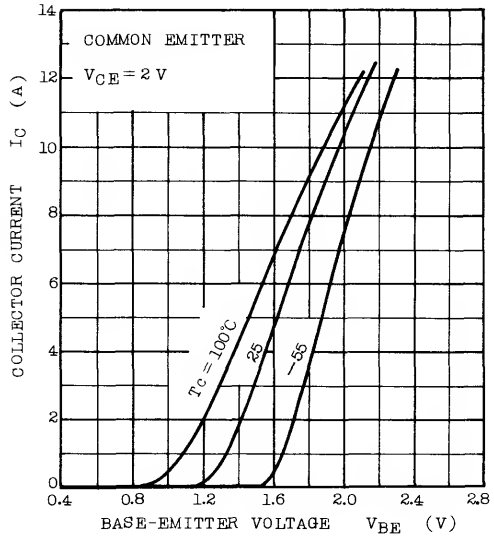
h_{FE} – I_C



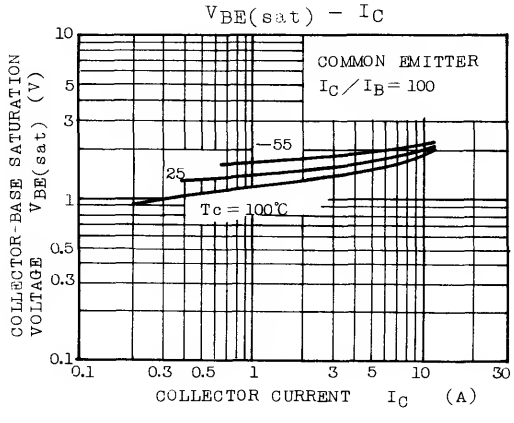
$V_{CE(sat)}$ – I_C



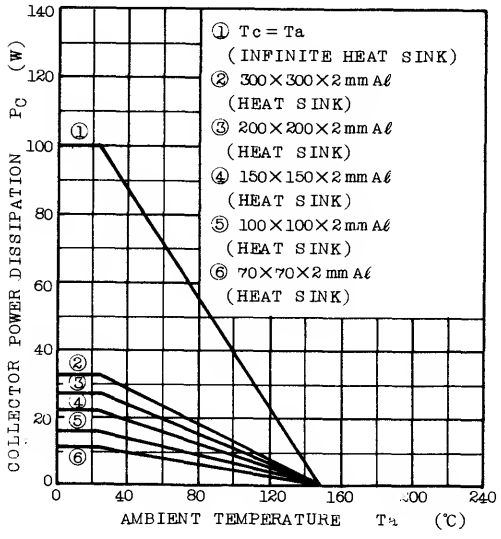
I_C – V_{BE}



$V_{BE(sat)}$ – I_C



P_C – Ta



SAFE OPERATING AREA