SILICON NPN TRIPLE DIFFUSED TYPE
(DARLINGTON POWER)

2SD683
2SD683A

HIGH VOLTAGE AND HIGH POWER SWITCHING APPLICATIONS.
MOTOR DRIVE APPLICATIONS.

INDUSTRIAL APPLICATIONS

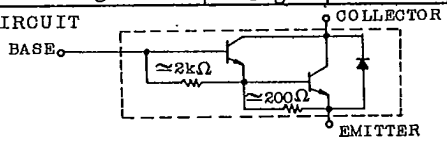
FEATURES :

- High DC Current Gain : h_{FE}=500(Min.)(V_{CE}=5V, I_C=5A)
- High Voltage : $V_{CEO(SUS)}$=450V (2SD683A)
- Monolithic Construction With Built-In Base-Emitter Shunt Resistor.

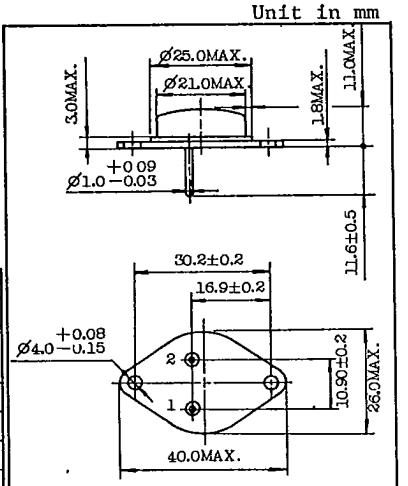
MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	600	V
Collector-Emitter Voltage	2SD683	V_{CEO}	400	V
	2SD683A		450	
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current		I_C	15	A
Base Current		I_B	2	A
Collector Power Dissipation (Tc=25°C)		P_C	150	W
Junction Temperature		Tj	150	°C
Storage Temperature Range		T_{stg}	-65∿150	°C

EQUIVALENT CIRCUIT



Unit in mm

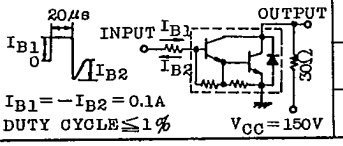


1. BASE
2. EMITTER
COLLECTOR (CASE)

JEDEC	TO — 3
EIAJ	TC — 3, TB — 3
TOSHIBA	2 — 21A1A

Mounting Kit No. AC73
Weight : 12.9g

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	-	-	30	mA
Collector-Emitter Sustaining Voltage	2SD683	$V_{CEO(SUS)}$	I_C=5A, L=10mH	400	-	-	V
	2SD683A			450	-	-	
DC Current Gain		$h_{FE(1)}$	V_{CE}=5V, I_C=5A	500	-	-	
		$h_{FE(2)}$	V_{CE}=5V, I_C=15A	30	-	-	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=10A, I_B=0.2A	-	-	2.0	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	I_C=10A, I_B=0.2A	-	-	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	-	100	-	pF
Switching Time	Turn-on Time	t_{on}		-	0.4	-	μs
	Storage Time	t_{stg}		-	15	-	
	Fall Time	t_f		-	3	-	

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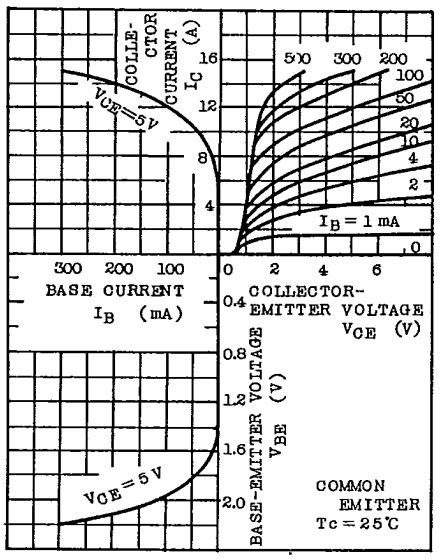
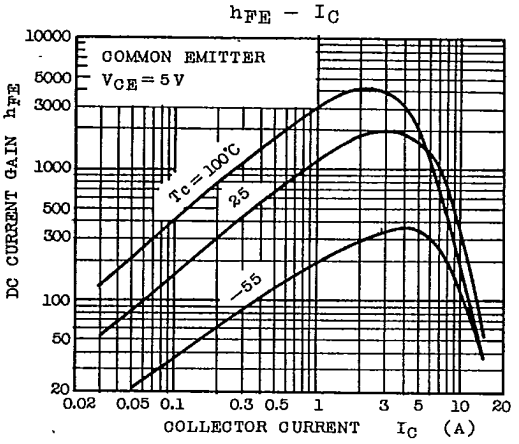
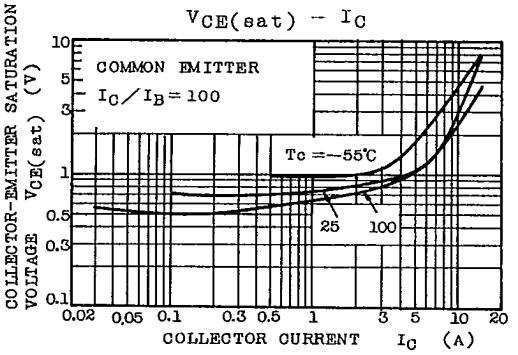
STATIC CHARACTERISTICS



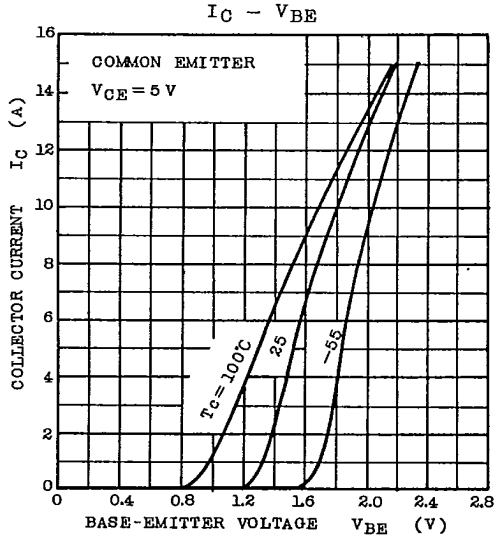
h_{FE} – I_C



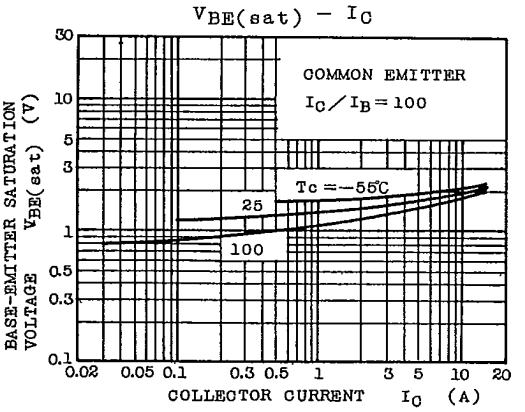
$V_{CE(sat)}$ – I_C



I_C – V_{BE}



$V_{BE(sat)}$ – I_C



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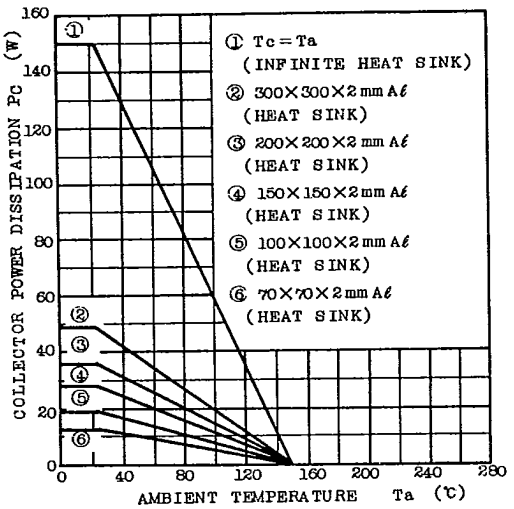
P_C – Ta



SAFE OPERATING AREA