

9097250 TOSHIBA (DISCRETE/OPTO)
 SILICON NPN TRIPLE DIFFUSED TYPE
 (DARLINGTON POWER)

56C 07750 D T-33-29

2SD683
2SD683A

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

INDUSTRIAL APPLICATIONS

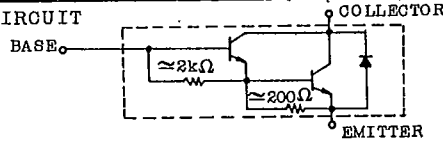
FEATURES :

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

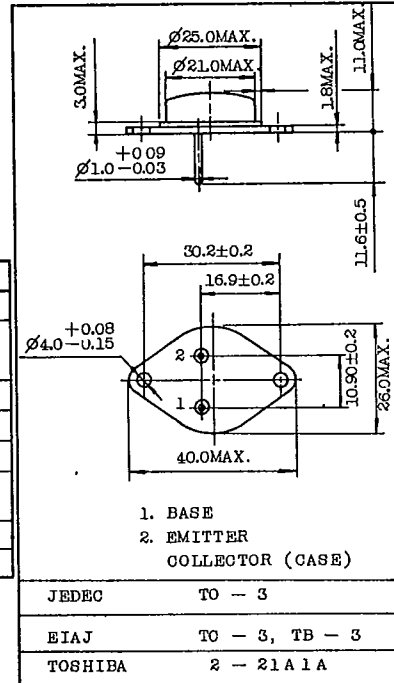
MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	600	V
Collector-Emitter Voltage	2SD683	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 ($T_c=25^\circ\text{C}$)	P_C	150	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65~150	$^\circ\text{C}$

EQUIVALENT CIRCUIT



Unit in mm



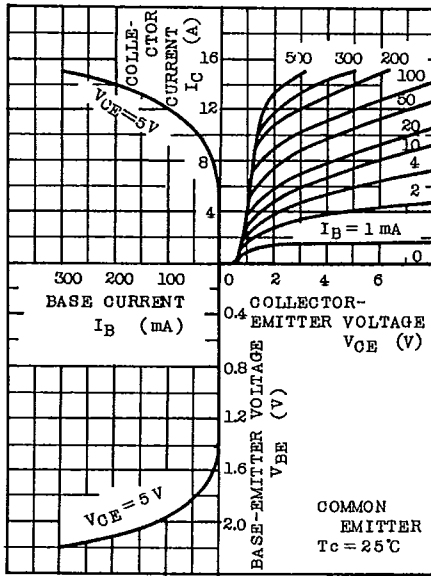
ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

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	$V_{CEO}(\text{SUS})$	$I_C=5A, L=10mH$	400	-	V		
				2SD683A	450	-	V	
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	$V_{CE}(\text{sat})$	$I_C=10A, I_B=0.2A$	-	-	2.0	V		
Base-Emitter Saturation Voltage	$V_{BE}(\text{sat})$	$I_C=10A, I_B=0.2A$	-	-	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	-	µs
	Fall Time	t_f			-	3	-	µs

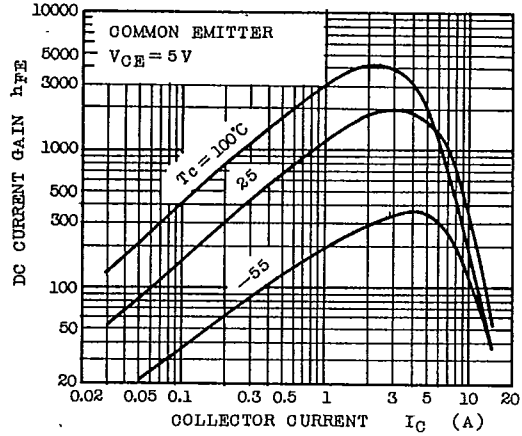
TOSHIBA CORPORATION

2SD683 • 2SD683A

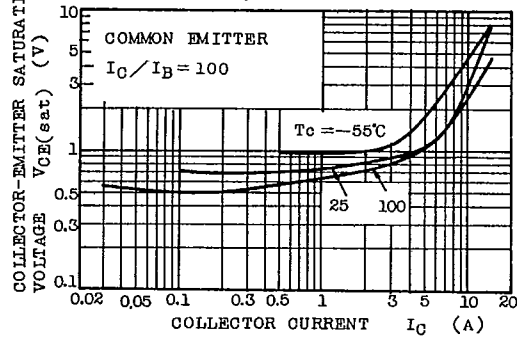
STATIC CHARACTERISTICS



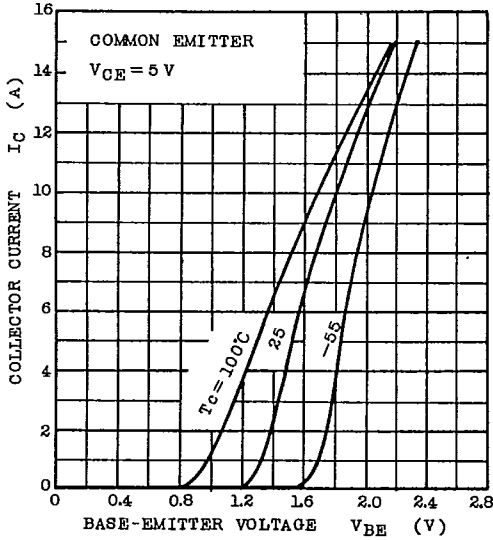
$h_{FE} - I_C$



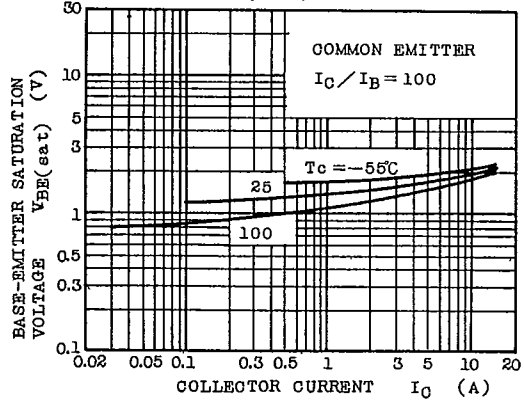
$V_{CE(sat)} - I_C$



$I_C - V_{BE}$



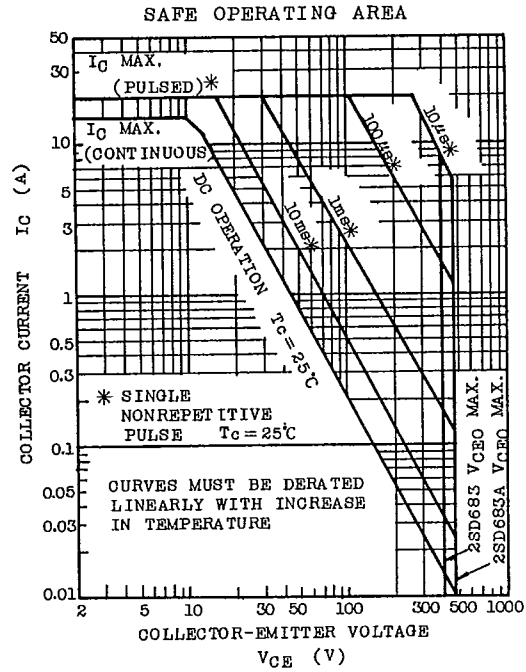
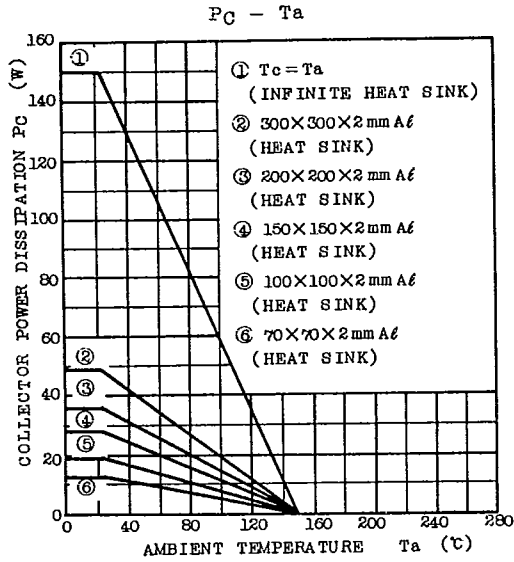
$V_{BE(sat)} - I_C$



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