

# 2SD647A 2SD697A

## SILICON NPN TRIPLE DIFFUSED MESA TYPE (DARLINGTON POWER)

HIGH POWER SWITCHING APPLICATIONS.  
DC-AC POWER INVERTER APPLICATIONS.  
MOTOR CONTROL APPLICATIONS.

**FEATURES:**

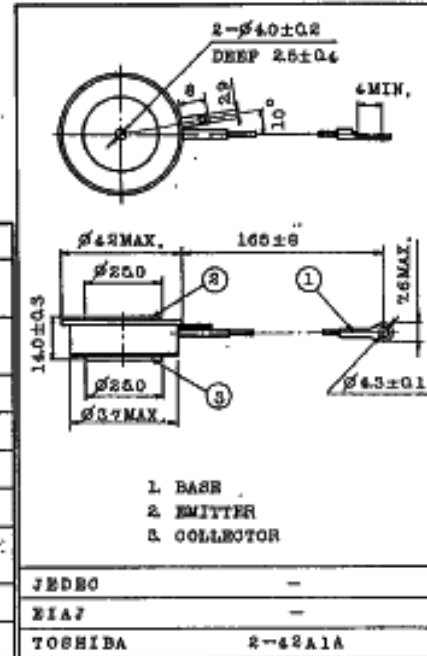
- High Voltage :  $V_{CE0(SUS)} \geq 450V$  (2SD697A)
- Triple Diffused Design.
- Darlington Design.

**MAXIMUM RATINGS.** ( $T_a=25^\circ C$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	2SD647A	800	V
	2SD697A	500	
Collector-Emmitter Voltage	2SD647A	600	V
	2SD697A	450	
Emitter-Base Voltage	$V_{EB0}$	5	V
Collector Current	$I_C$	100	A
Emmitter Current	$I_E$	-100	A
Base Current	$I_B$	6	A
Thermal Resistance (Double Side Cooling)	$R_{th(j-c)}$	0.13	$^\circ C/W$
Junction Temperature	$T_j$	125	$^\circ C$
Storage Temperature Range	$T_{stg}$	-40 ~ 150	$^\circ C$
Mounting Force Required	F	400±40	kg

**INDUSTRIAL APPLICATIONS**

Unit in mm



Weight : 70g

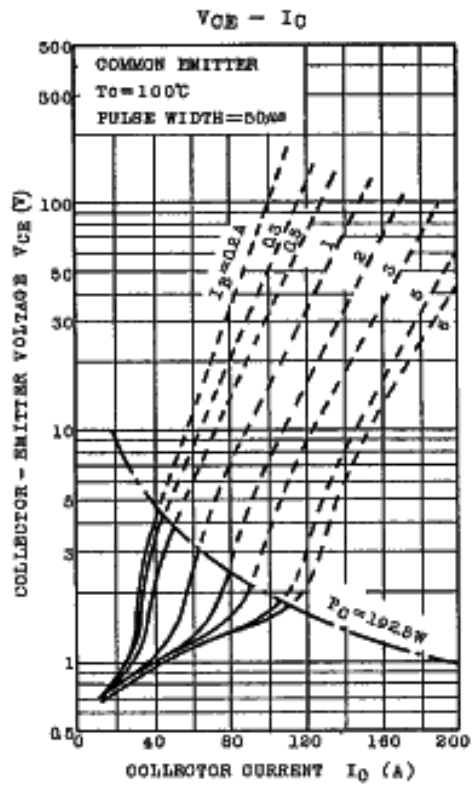
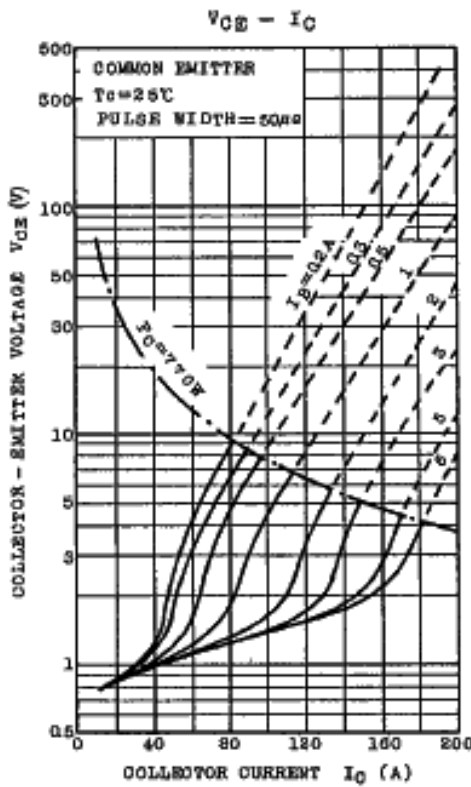
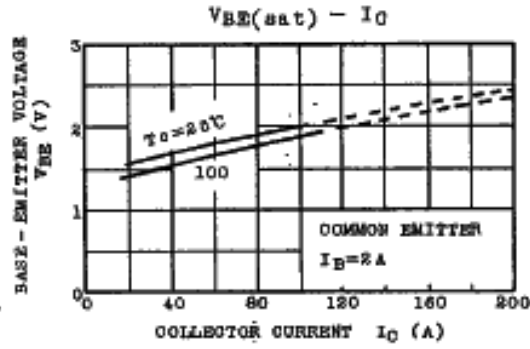
**ELECTRICAL CHARACTERISTICS** ( $T_a=25^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
DC Current Gain	$h_{FE}$	$V_{CE}=5V, I_C=100A$	100	-	-		
		$V_{CE}=5V, I_C=50A$	-	500	-		
Collector-Emmitter Sustaining Voltage	$V_{CE0(SUS)}$	$I_C=0.5A, L=40mH$	600	-	-	V	
2SD697A			450				
Collector-Emmitter Saturation Voltage	$V_{CE(sat)}$	$I_C=100A, I_B=2A$ (Note)	-	-	2.0	V	
Base-Emmitter Saturation Voltage	$V_{BE(sat)}$		-	-	2.5	V	
Collector Cut-off Current	$I_{CBO}$	2SD647A	$V_{CB}=800V, I_E=0$	-	-	2	mA
		2SD697A	$V_{CB}=500V, I_E=0$	-	-	2	
Emmitter Cut-off Current	$I_{EBO}$	$V_{EB}=5V, I_C=0$	-	-	200	mA	
Switching Time	Turn-on Time	$I_C=100A, I_{B1}=2A, -I_{B2}=2A, V_C=300V$	$t_{on}$	-	2.5	-	$\mu s$
	Storage Time		$t_{stg}$	-	20	-	$\mu s$
	Fall Time		$t_f$	-	4	-	$\mu s$

Note : Pulse Test; Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 3\%$   
Mounting Force;  $F=400kg$

**TOSHIBA CORPORATION**

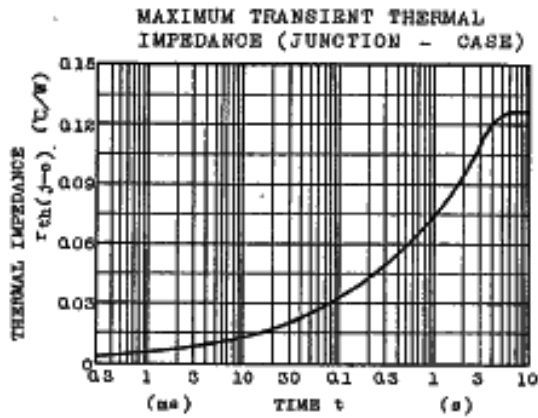
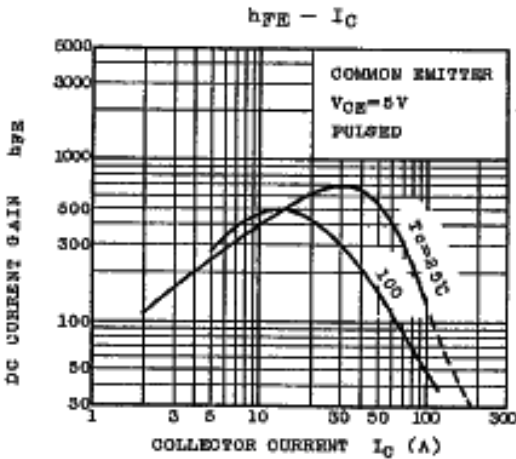
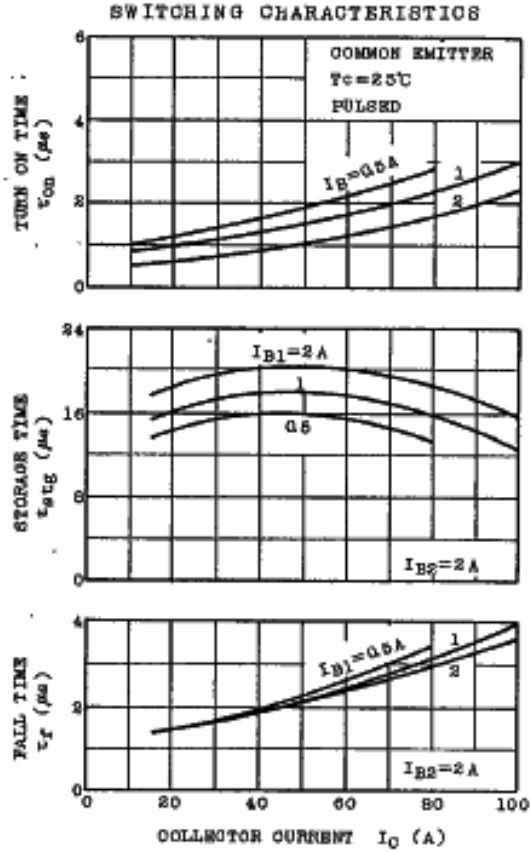
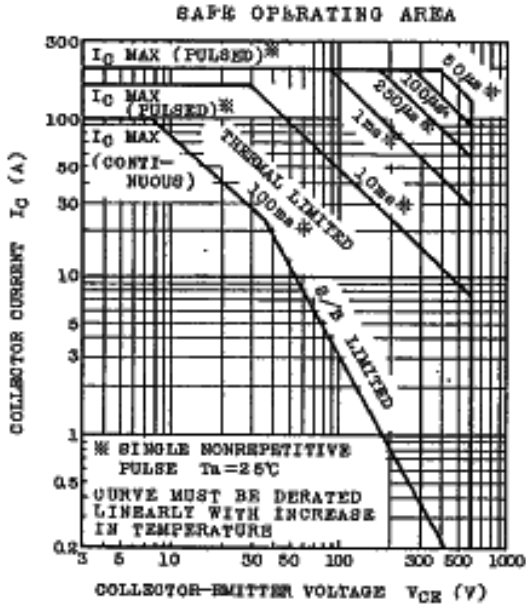
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