

SILICON NPN TRIPLE DIFFUSED MESA TYPE
(DARLINGTON POWER)

2SD648A

INDUSTRIAL APPLICATIONS
Unit in mm

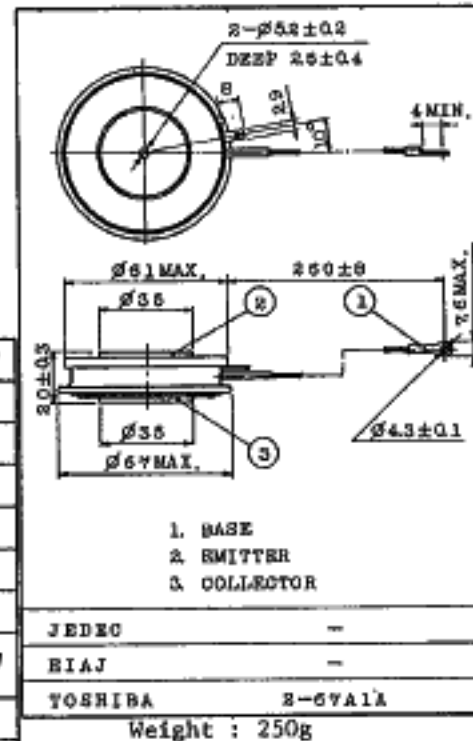
HIGH POWER SWITCHING APPLICATIONS.
DC MOTOR CONTROL APPLICATIONS.
ELECTRIC CAR APPLICATIONS.

FEATURES:

- High Voltage : $V_{CEO(SUS)}=300V$
- Triple Diffused Design.
- Darlington Design.

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	300	V
Collector-Emitter Voltage	$V_{CEO(SUS)}$	300	V
Emitter-Base Voltage	V_{EBO}	4	V
Collector Current	I_C	400	A
Emitter Current	I_E	-400	A
Base Current	I_B	12	A
Thermal Resistance (Double Side Cooling)	$R_{th(j-c)}$	0.04	$^{\circ}C/W$
Junction Temperature	T_j	125	$^{\circ}C$
Storage Temperature Range	T_{stg}	-40 ~ 150	$^{\circ}C$
Mounting Force Required	F	1000±100	kg



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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
DC Current Gain	h_{FE}	$V_{CE}=5V, I_C=400A$	100	400	-	
Collector-Emitter Sustaining Voltage	$V_{CEO(SUS)}$	$I_C=0.5A, L=40mH$	300	-	-	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=400A, I_B=8A$ (Note)	-	-	2.0	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=400A, I_B=8A$ (Note)	-	-	2.5	V
Collector Cut-off Current	I_{CEO}	$V_{CE}=300V, I_B=0$	-	1.0	10	mA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=4V, I_C=0$	-	50	250	mA
Switching Time	Turn-on Time	t_{on}	-	1.0	3.0	μs
	Storage Time	t_{stg}	-	8	13	μs
	Fall Time	t_f	-	2	3.0	μs

Note: Pulse Test, Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 3\%$
Mounting Force; F=1000kg

TOSHIBA CORPORATION

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