High Voltage NPN Power Transistors
(3A, 1500V)

FEATURES

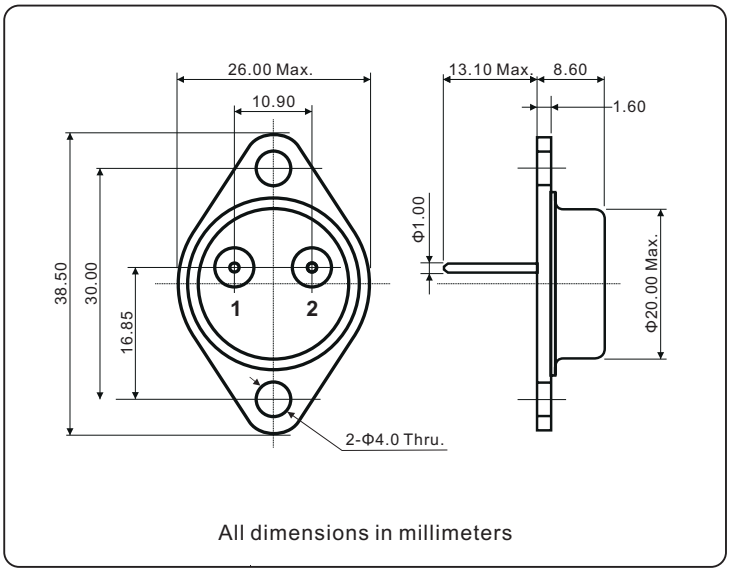
- High V_{CES} breakdown voltage.
- High collector peak current
- High reliability

DESCRIPTION

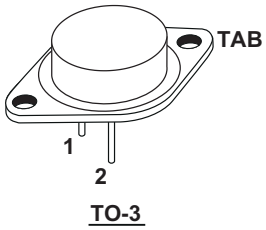
The **2SD649** is a silicon epitaxial-base mesa NPN transistor mounted in JEDEC TO-3 metal case.

APPLICATIONS

- Designed for line-operated horizontal deflection output

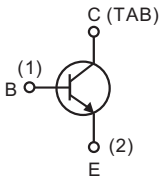


All dimensions in millimeters



TO-3

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise specified)			
SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector to base voltage	1500	V
V_{CES}	Collector to emitter voltage (V_{BE} = 0)	1500	
V_{EBO}	Emitter to base voltage (I_C = 0)	5	
I_C	Collector current	3	A
I_{CP}	Collector peak current	5	
P_C	Total power dissipation ($T_C \leq 90°C$)	35	W
T_j	Junction temperature	130	°C
T_{stg}	Storage temperature	-65 to 130	
T_L	Maximum lead temperature for soldering purposes : 1/8" from case for 5 seconds	275	

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise specified)					
SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
◎ OFF CHARACTERISTICS					
I_{CBO}	Collector cutoff current	V_{CB} = 750V, I_E = 0		100	μA
		V_{CB} = 1500V, I_E = 0		1.0	mA
I_{EBO}	Emitter cutoff current	V_{EB} = 5V, I_C = 0		1.0	
$V_{(BR)EBO}$	Emitter to base breakdown voltage	I_C = 0, I_E = 10mA	5		V
$V_{CE(sat)}$	Collector to emitter saturation voltage	I_C = 3A, I_B = 1A		7.0	
$V_{BE(sat)}$	Base to emitter saturation voltage	I_C = 3A, I_B = 1A		1.5	
h_{FE}	DC current gain	I_C = 3A, V_{CE} = 10V	4	12	

INDUCTIVE SWITCHING TIMES							
SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
t_s	Storage time	I_C = 3A, L_B = 20μH, I_{Bend} = 1A	T_C = 25°C		13		μs
t_f	Fall time	I_C = 3A, L_B = 20μH, I_{Bend} = 1A	T_C = 25°C			1.0	

Fig.1 Power dissipation vs. ambient tempearatrature

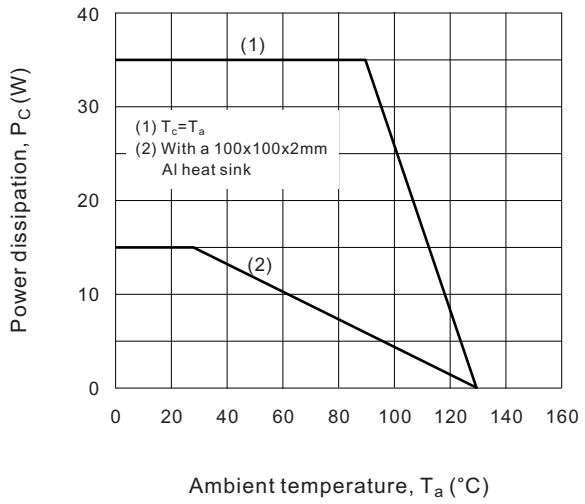


Fig.2 Base-Emitter saturation voltage

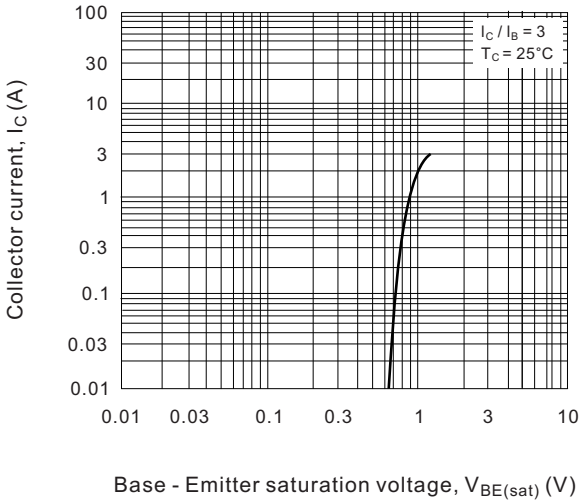


Fig.3 Collector-Emitter saturation voltage

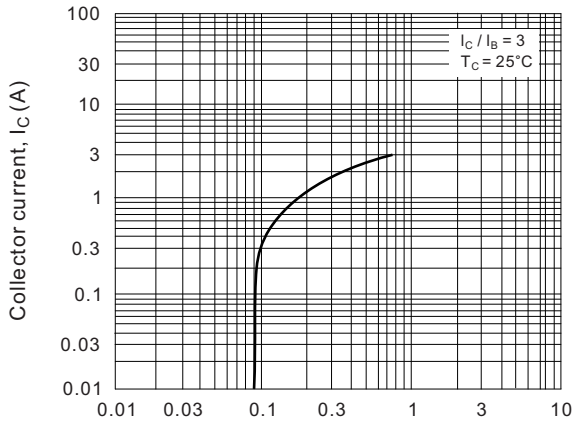


Fig.4 DC current gain

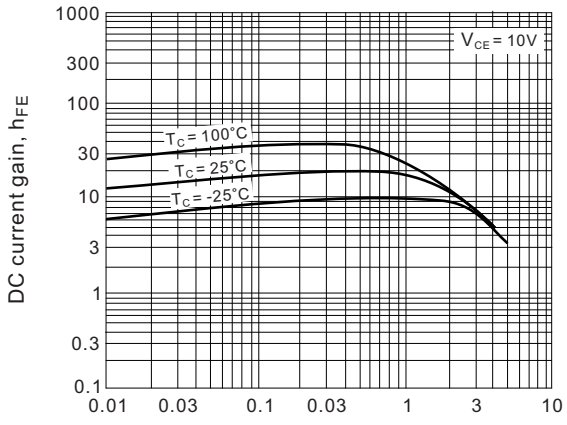


Fig.5 Safe operation area

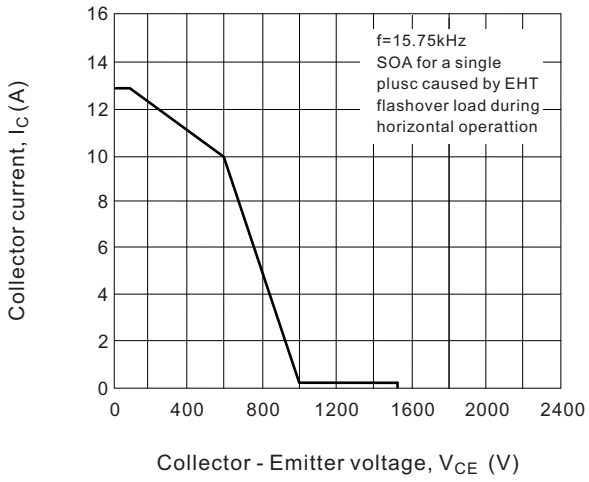


Fig.6 Thermal resistance (from junction to tab)