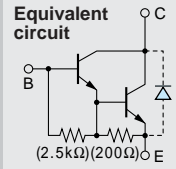


# Darlington 2SD2045



Silicon NPN Triple Diffused Planar Transistor

Application : Driver for Solenoid, Motor and General Purpose

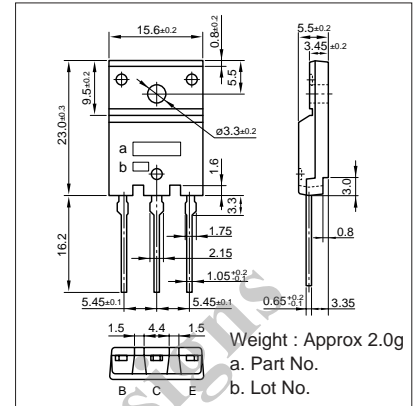
■ Absolute maximum ratings (Ta=25°C)

Symbol	Ratings	Unit
V <sub>CB0</sub>	120	V
V <sub>CEO</sub>	120	V
V <sub>EBO</sub>	6	V
I <sub>C</sub>	6(Pulse10)	A
I <sub>B</sub>	1	A
P <sub>C</sub>	50(Tc=25°C)	W
T <sub>j</sub>	150	°C
T <sub>stg</sub>	-55 to +150	°C

■ Electrical Characteristics (Ta=25°C)

Symbol	Conditions	Ratings	Unit
I <sub>CB0</sub>	V <sub>CB</sub> =120V	10max	μA
I <sub>EBO</sub>	V <sub>EB</sub> =6V	10max	mA
V <sub>(BR)CEO</sub>	I <sub>C</sub> =10mA	120min	V
h <sub>FE</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =3A	2000min	
V <sub>CE(sat)</sub>	I <sub>C</sub> =3A, I <sub>B</sub> =3mA	1.5max	V
V <sub>BE(sat)</sub>	I <sub>C</sub> =3A, I <sub>B</sub> =3mA	2.0max	V
f <sub>T</sub>	V <sub>CE</sub> =12V, I <sub>E</sub> =-1A	50typ	MHz
COB	V <sub>CB</sub> =10V, f=1MHz	70typ	pF

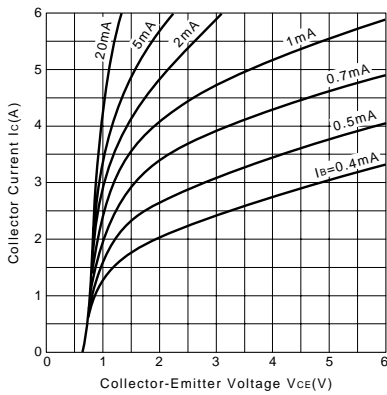
External Dimensions FM100(TO3PF)



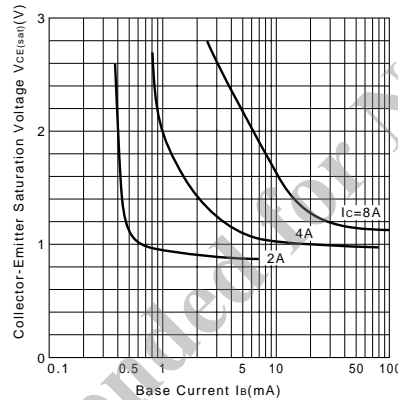
■ Typical Switching Characteristics (Common Emitter)

V <sub>CC</sub> (V)	R <sub>L</sub> (Ω)	I <sub>C</sub> (A)	V <sub>BB1</sub> (V)	V <sub>BB2</sub> (V)	I <sub>B1</sub> (mA)	I <sub>B2</sub> (mA)	t <sub>on</sub> (μs)	t <sub>stg</sub> (μs)	t <sub>f</sub> (μs)
30	10	3	10	-5	3	-3	0.5typ	5.5typ	1.5typ

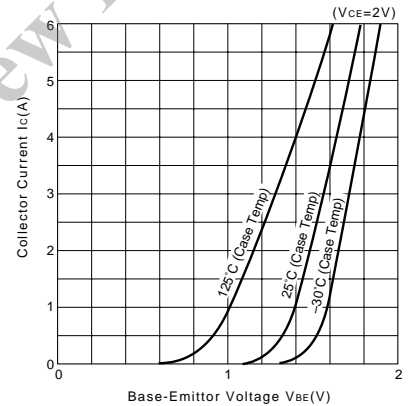
I<sub>C</sub>-V<sub>CE</sub> Characteristics (Typical)



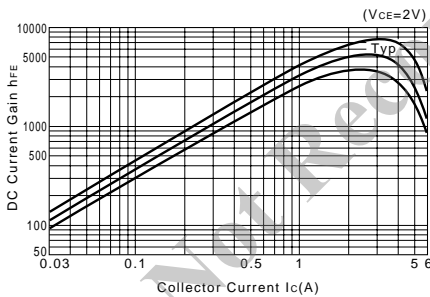
V<sub>CE(sat)</sub>-I<sub>B</sub> Characteristics (Typical)



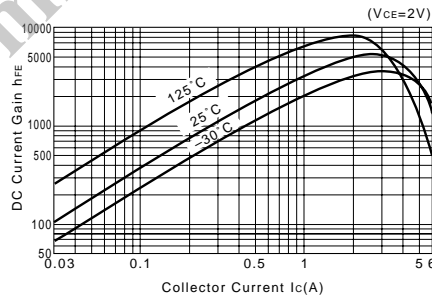
I<sub>C</sub>-V<sub>BE</sub> Temperature Characteristics (Typical)



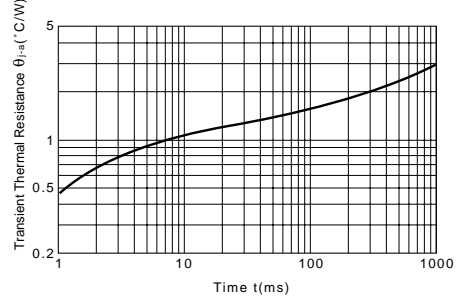
h<sub>FE</sub>-I<sub>C</sub> Characteristics (Typical)



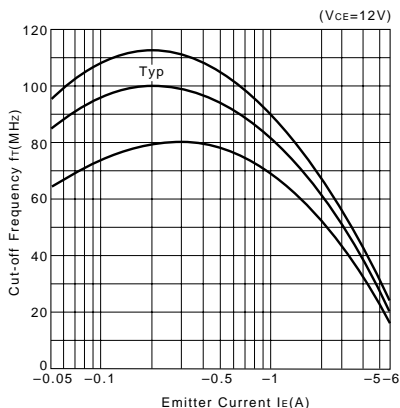
h<sub>FE</sub>-I<sub>C</sub> Temperature Characteristics (Typical)



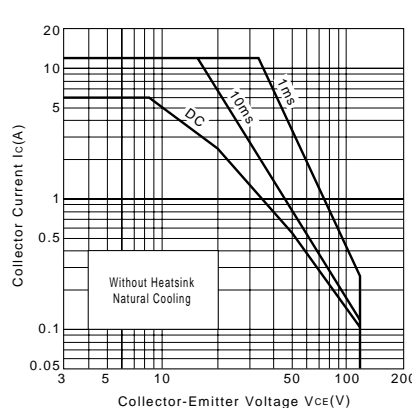
θ<sub>j-a</sub>-t Characteristics



f<sub>T</sub>-I<sub>E</sub> Characteristics (Typical)



Safe Operating Area (Single Pulse)



P<sub>C</sub>-T<sub>a</sub> Derating

