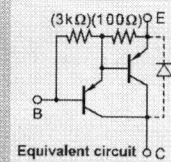


Darlington

2SB1259



Silicon PNP Epitaxial Planar Transistor (Complement to type 2SD2081)

Application : Driver for Solenoid, Relay and Motor and General Purpose

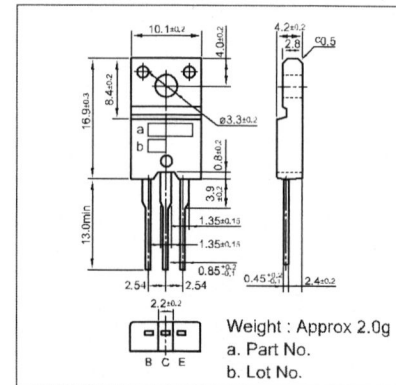
Absolute maximum ratings (Ta=25°C)

Symbol	Rating	Unit
V_{CB0}	-120	V
V_{CE0}	-120	V
V_{EB0}	-6	V
I_C	-10(Pulse-15)	A
I_B	-1	A
P_C	30(Tc=25°C)	W
T_j	150	°C
T_{stg}	-55 to +150	°C

Electrical Characteristics (Ta=25°C)

Symbol	Conditions	Rating	Unit
I_{CBO}	$V_{CB} = -120V$	-10max	μA
I_{EBO}	$V_{EB} = -6V$	-10max	mA
$V_{(Hk)CEO}$	$I_C = -10mA$	-120min	V
h_{FE}	$V_{CE} = -4V, I_C = -5A$	2000min	
$V_{CE(sat)}$	$I_C = -5A, I_B = -10mA$	-1.5max	V
$V_{BE(sat)}$	$I_C = -5A, I_B = -10mA$	-2.0max	V
f_T	$V_{CE} = -12V, I_E = 0.2A$	100typ	MHz
C_{ob}	$V_{CE} = -10V, f = 1MHz$	145typ	pF

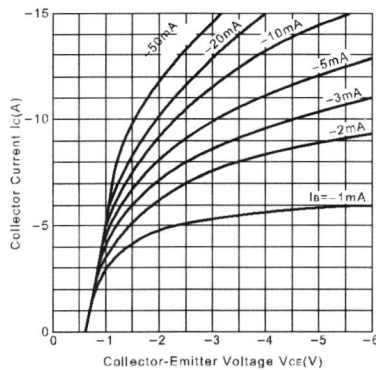
External Dimensions FM20(TO220F)



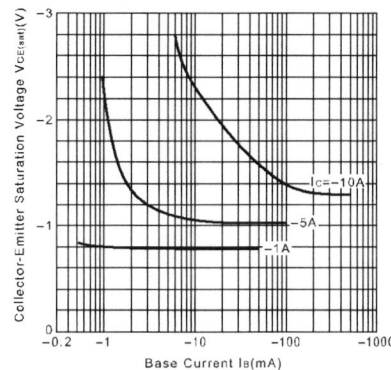
Typical Switching Characteristics (Common Emitter)

V_{CC} (V)	R_L (Ω)	I_C (A)	V_{CE1} (V)	V_{BE2} (V)	I_{B1} (mA)	I_{B2} (mA)	t_{on} (μs)	t_{stq} (μs)	t_f (μs)
-30	10	-3	-10	5	-6	6	0.6typ	1.6typ	0.5typ

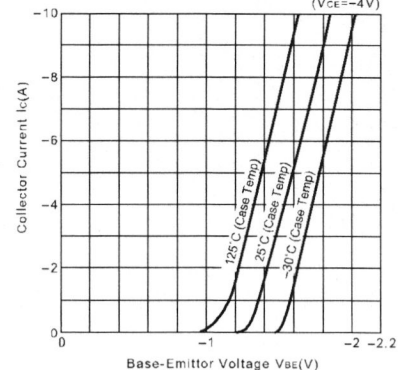
I_C - V_{CE} Characteristics (Typical)



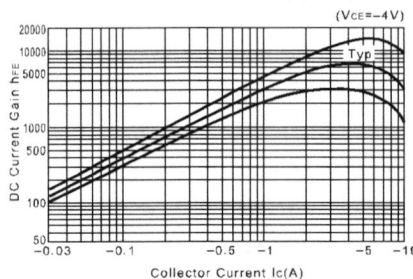
$V_{CE(sat)}$ - I_B Characteristics (Typical)



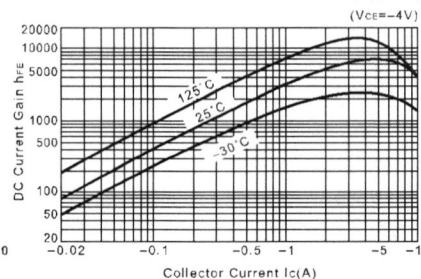
I_C - V_{BE} Temperature Characteristics (Typical)



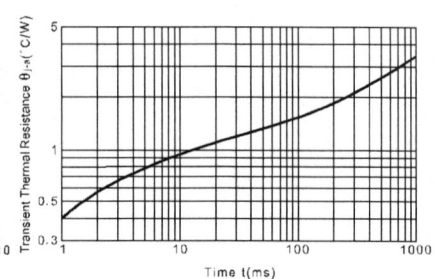
h_{FE} - I_C Characteristics (Typical)



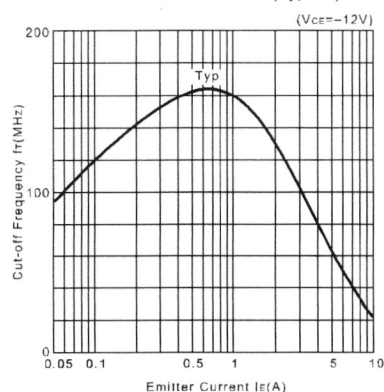
h_{FE} - I_C Temperature Characteristics (Typical)



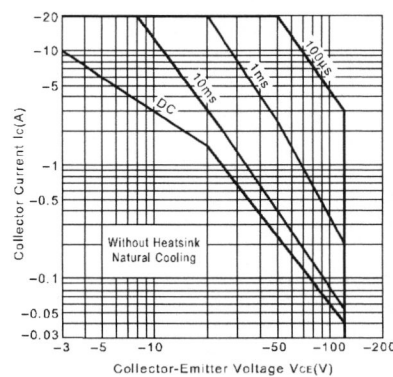
θ_{JA} -t Characteristics



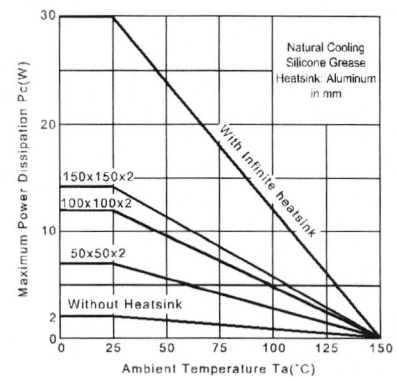
f_T - I_E Characteristics (Typical)



Safe Operating Area (Single Pulse)

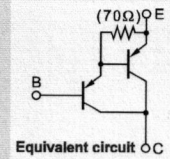


P_C - T_a Derating



Darlington

2SB1559



Silicon PNP Epitaxial Planar Transistor (Complement to type 2SD2389)

Application : Audio, Series Regulator and General Purpose

Absolute maximum ratings (Ta=25°C)

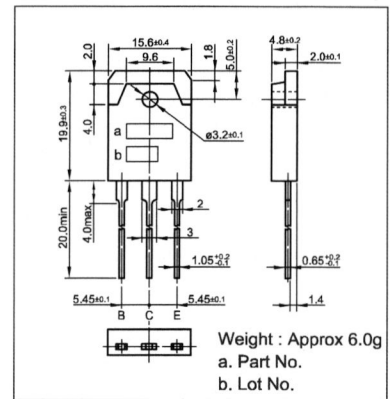
Symbol	Ratings	Unit
V _{CB0}	-160	V
V _{CEO}	-150	V
V _{EB0}	-5	V
I _C	-8	A
I _B	-1	A
P _C	80(T _C =25°C)	W
T _J	150	°C
T _{stg}	-55 to +150	°C

Electrical Characteristics (Ta=25°C)

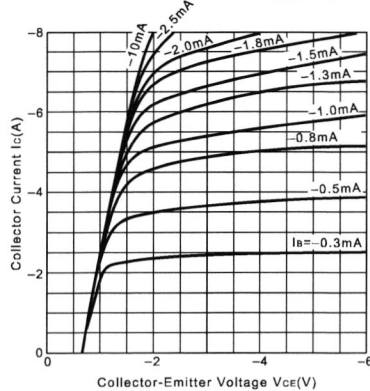
Symbol	Conditions	Ratings	Unit
I _{CB0}	V _{CB} =-160V	-100max	μA
I _{FBO}	V _{EB} =-5V	-100max	μA
V _{(BR)CEO}	I _C =-30mA	-150min	V
h _{FE}	V _{CE} =-4V, I _C =-6A	5000min*	
V _{CE(sat)}	I _C =-6A, I _B =-6mA	-2.5max	V
V _{BE(sat)}	I _C =-6A, I _B =-6mA	-3.0max	V
f _T	V _{CE} =-12V, I _E =1A	65typ	MHz
C _{OB}	V _{CB} =-10V, f=1MHz	160typ	pF

*h_{FE} Rank O(5000 to 12000), P(6500 to 20000), Y(15000 to 30000)

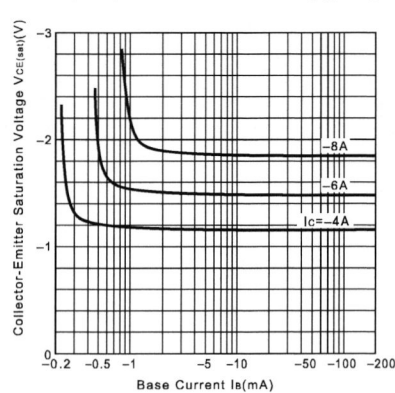
External Dimensions MT-100(TO3P)



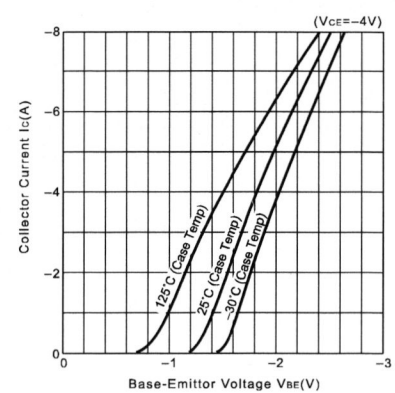
I_C-V_{CE} Characteristics (Typical)



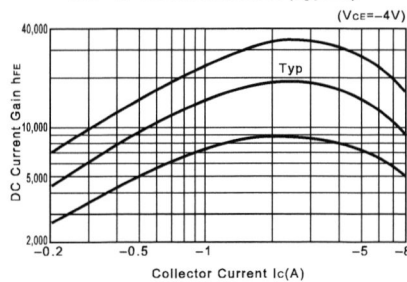
V_{CE(sat)}-I_B Characteristics (Typical)



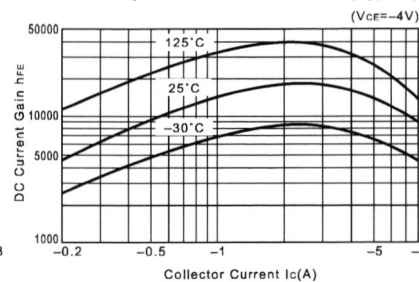
I_C-V_{BE} Temperature Characteristics (Typical)



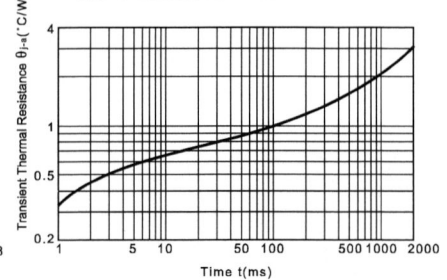
h_{FE}-I_C Characteristics (Typical)



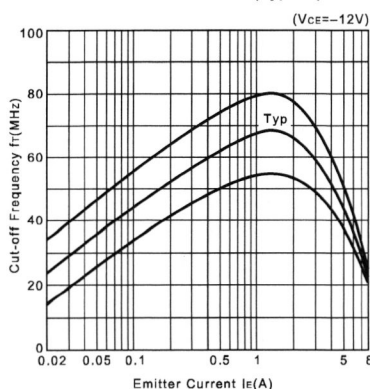
h_{FE}-I_C Temperature Characteristics (Typical)



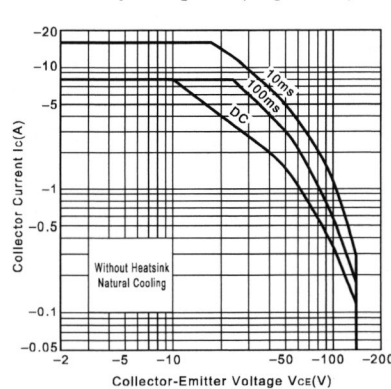
θ_{J-a}-t Characteristics



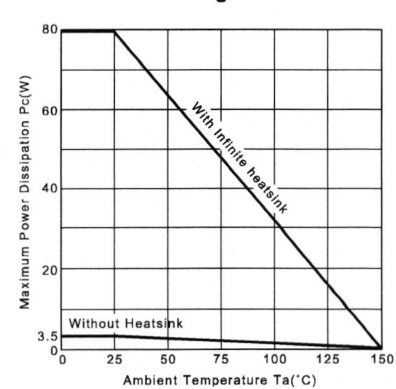
f_T-I_E Characteristics (Typical)



Safe Operating Area (Single Pulse)

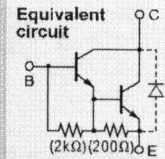


P_C-T_a Derating



Darlington

2SD2081



Silicon NPN Triple Diffused Planar Transistor (Complement to type 2SB1259)

Application : Driver for Solenoid, Motor and General Purpose

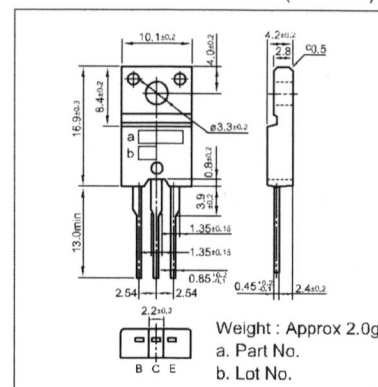
■ Absolute maximum ratings (Ta=25°C)

Symbol	Ratings	Unit
V _{CEO}	120	V
V _{CE0}	120	V
V _{EB0}	6	V
I _C	10(Pulse15)	A
I _B	1	A
P _C	30(Tc=25°C)	W
T _J	150	°C
T _{stg}	-55 to +150	°C

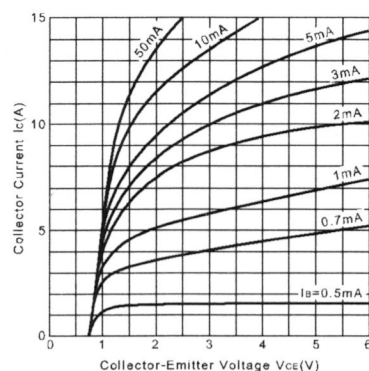
■ Electrical Characteristics (Ta=25°C)

Symbol	Conditions	Ratings	Unit
I _{CBO}	V _{CB} =120V	10max	μA
I _{EB0}	V _{EB} =6V	10max	mA
V _{BR(CEO)}	I _C =10mA	120min	V
h _{FE}	V _{CE} =4V, I _C =5A	2000min	
V _{CE(sat)}	I _C =5A, I _B =5mA	1.5max	V
V _{BC(sat)}	I _C =5A, I _B =5mA	2.0max	V
f _T	V _{CE} =12V, I _E =-0.5A	60typ	MHz
C _{OB}	V _{CB} =10V, f=1MHz	95typ	pF

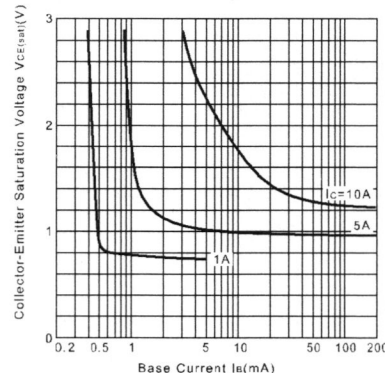
External Dimensions FM20(TO220F)



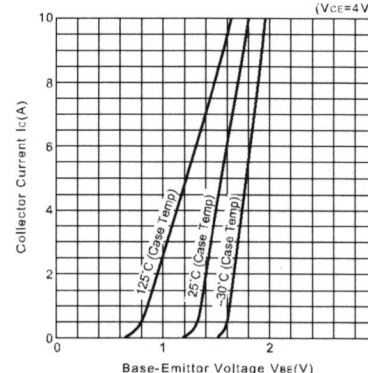
I_C-V_{CE} Characteristics (Typical)



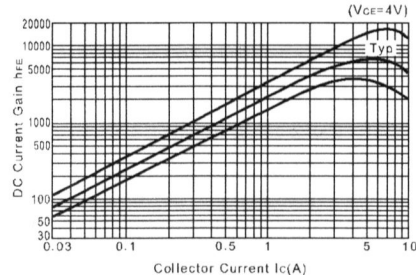
V_{CE(sat)}-I_B Characteristics (Typical)



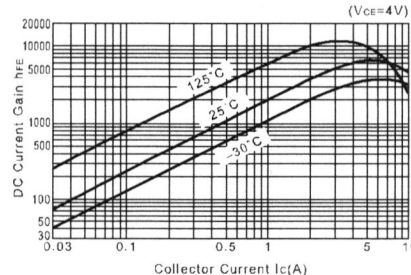
I_C-V_{BE} Temperature Characteristics (Typical)



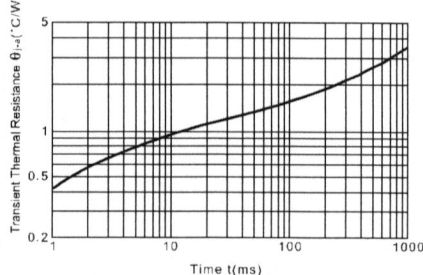
h_{FE}-I_C Characteristics (Typical)



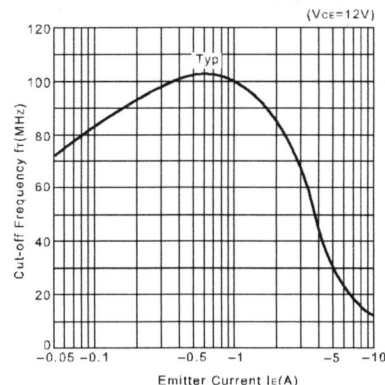
h_{FE}-I_C Temperature Characteristics (Typical)



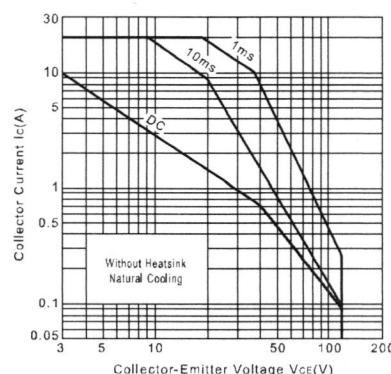
θ_{JA}-t Characteristics



f_T-I_E Characteristics (Typical)



Safe Operating Area (Single Pulse)



P_C-T_a Derating

