Medium Power Transistor (60V, 1A)

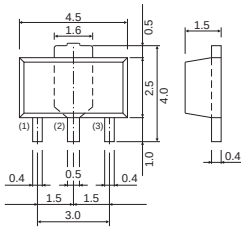
2SD1834

●Features

1) Darlington connection for high DC current gain
   (typically, DC current gain = 15000 at V_{CE} = 3V, I_C = 0.5A)
2) High input impedance.

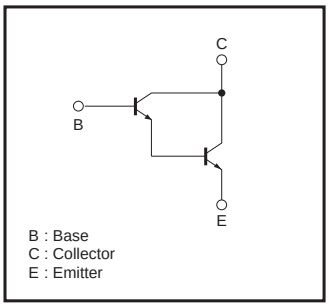
●Dimensions (Unit : mm)

MPT3
SOT-89



(1)Base
(2)Collector
(3)Emitter

●Inner circuit



B : Base
C : Collector
E : Emitter

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit	
Collector-base voltage	V_{CBO}	60	V	
Collector-emitter voltage	V_{CES}	60	V	∗2
Emitter-base voltage	V_{EBO}	7	V	
Collector current	I_C	1	A(DC)	
		2	A(Pulse)	∗1
Collector power dissipation	P_C	0.5	W	
		2 ∗3		
Junction temperature	Tj	150	°C	
Storage temperature	Tstg	−55 to +150	°C	

∗1 Single pulse Pw=100ms
∗2 R_{BE}=0Ω
∗3 Mounted on a 40×40×t0.7mm ceramic substrate

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	60	–	–	V	I_C=50μA
Collector-emitter breakdown voltage	BV_{CEO}	60	–	–	V	I_C=100μA , R_{BE}=0Ω
Emitter-base breakdown voltage	BV_{EBO}	7	–	–	V	I_E=50μA
Collector cutoff current	I_{CBO}	–	–	1	μA	V_{CB}=60V
Emitter cutoff current	I_{EBO}	–	–	1	μA	V_{EB}=6V
DC current transfer ratio	h_{FE}	2000	–	–	–	V_{CE}/I_C=3V/500mA ∗
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	0.9	1.5	V	I_C/I_B=500mA/500μA
Transition frequency	f_T	–	150	–	MHz	V_{CE}=5V , I_E= −10mA , f=100MHz
Output capacitance	Cob	–	7	–	pF	V_{CE}=10V , I_E=0A , f=1MHz

∗ Measured using pulse current.

● Packaging specifications and h_{FE}

Type	2SD1834
Package	MPT3
h_{FE}	2k~
Marking	DE*
Code	T100
Basic ordering unit (pieces)	1000

*Denotes h_{FE}

●Electrical characteristics curves

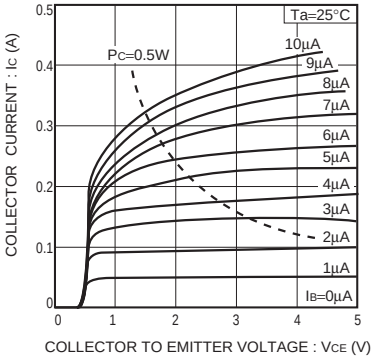


Fig.1 Ground emitter output characteristics

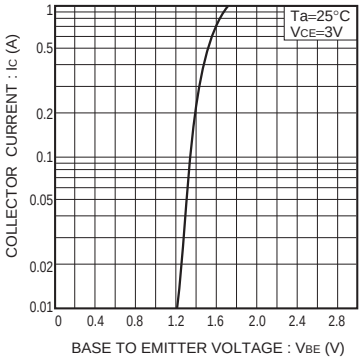


Fig.2 Ground emitter propagation characteristics

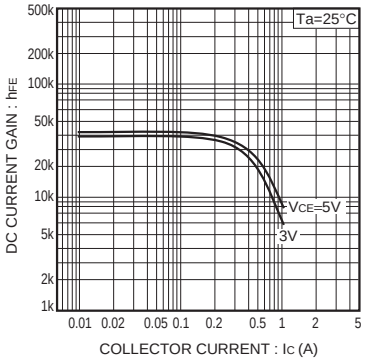


Fig.3 DC current gain vs. collector current

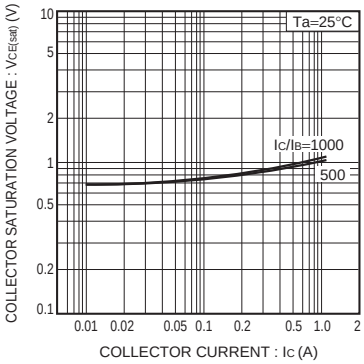


Fig.4 Collector-emitter saturation voltage vs. collector current

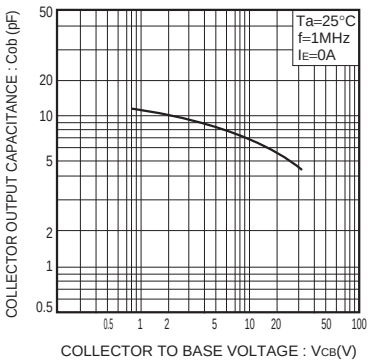


Fig.5 Collector output capacitance vs. collector-base voltage

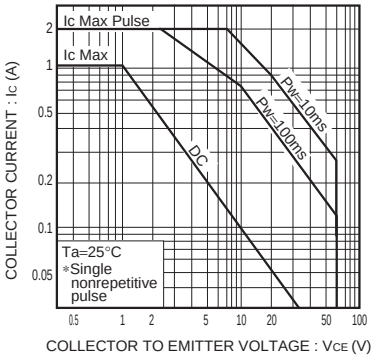


Fig.6 Safe operating area

Notes

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