SDC03

NPN Darlington
With built-in avalanche diode

External dimensions Ⓔ ··· SD

Absolute maximum ratings

(Ta=25°C)

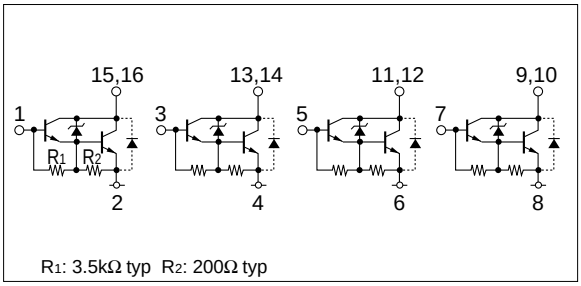
Symbol	Ratings	Unit
V_{CBO}	60±10	V
V_{CEO}	60±10	V
V_{EBO}	6	V
I_C	1.5	A
I_{CP}	2.5 (PW≤1ms, Du≤10%)	A
I_B	0.1	A
P_T	3 (Ta=25°C)	W
T_j	150	°C
T_{stg}	–40 to +150	°C
θ_{j-a}	41.6	°C/W

Electrical characteristics

(Ta=25°C)

Symbol	Specification			Unit	Conditions
	min	typ	max		
I_{CBO}			10	μA	V_{CB}=50V
I_{EBO}	1.1		3.5	mA	V_{EB}=6V
V_{CEO}	50	60	70	V	I_C=10mA
h_{FE}	2000	5000	12000		V_{CE}=4V, I_C=1A
V_{CE}(sat)		1.2	1.4	V	I_C=1A, I_B=2mA
V_{BE}(sat)		1.8	2.2	V	
V_{FEC}		1.3	1.8	V	I_{FEC}=1A
t_{on}		0.5		μs	V_{CC}≒30V,
t_{stg}		4.0		μs	I_C=1A,
t_f		1.0		μs	I_{B1}=–I_{B2}=2mA
f_T		50		MHz	V_{CE}=12V, I_E=–0.1A
C_{ob}		25		pF	V_{CB}=10V, f=1MHz

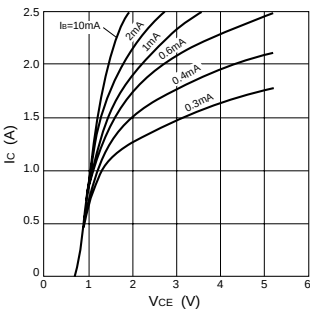
■Equivalent circuit diagram



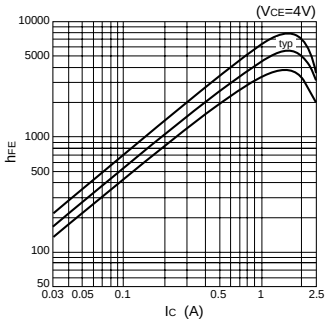
R1: 3.5kΩ typ R2: 200Ω typ

Characteristic curves

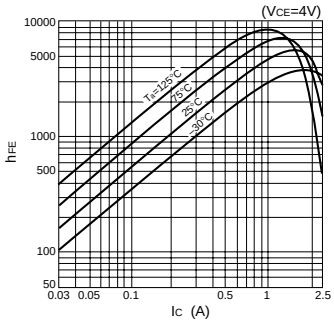
I_C-V_{CE} Characteristics (Typical)



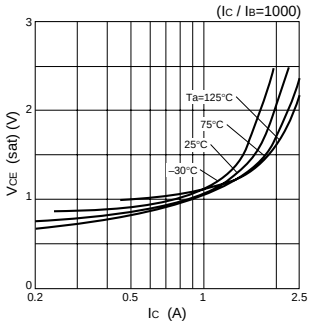
h_{FE}-I_C Characteristics (Typical)



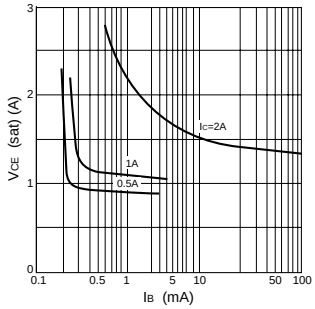
h_{FE}-I_C Temperature Characteristics (Typical)



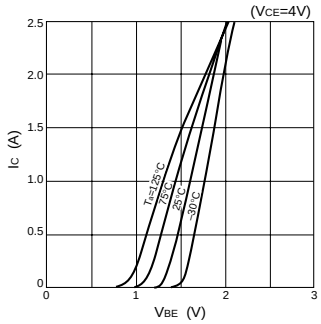
V_{CE}(sat)-I_C Temperature Characteristics (Typical)



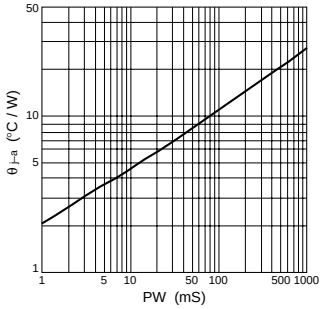
V_{CE}(sat)-I_B Characteristics (Typical)



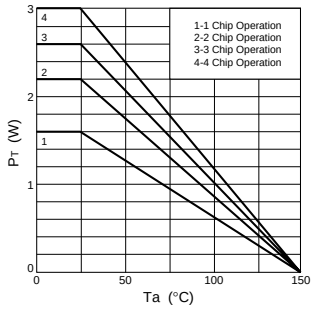
I_C-V_{BE} Temperature Characteristics (Typical)



θ_{j-a}-PW Characteristics



P_T-T_a Characteristics



Safe Operating Area (SOA)

