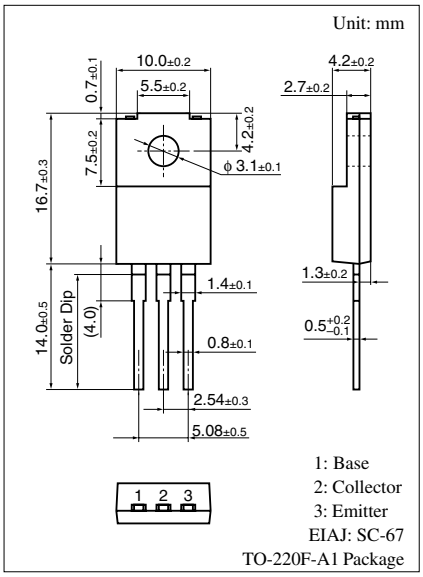
2SD1271, 2SD1271A

Silicon NPN epitaxial planar type

For power switching

Complementary to 2SB0946 and 2SB0946A



■ Features

- Low collector to emitter saturation voltage $V_{CE(sat)}$
- Satisfactory linearity of forward current transfer ratio h_{FE}
- Large collector current I_C
- Full-pack package which can be installed to the heat sink with one screw

■ Absolute Maximum Ratings $T_C = 25°C$

Parameter		Symbol	Rating	Unit
Collector to base voltage	2SD1271	V_{CBO}	130	V
	2SD1271A		150	
Collector to emitter voltage	2SD1271	V_{CEO}	80	V
	2SD1271A		100	
Emitter to base voltage		V_{EBO}	7	V
Peak collector current		I_{CP}	15	A
Collector current		I_C	7	A
Collector power dissipation	$T_C = 25°C$	P_C	40	W
	$T_a = 25°C$		2	
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	−55 to +150	°C

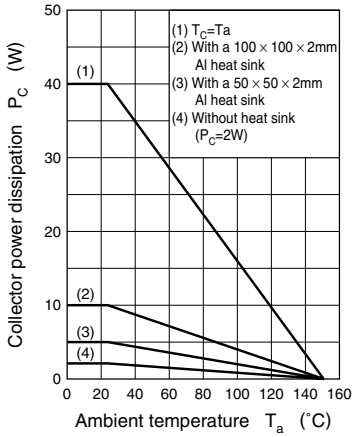
■ Electrical Characteristics $T_C = 25°C$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current		I_{CBO}	V_{CB} = 100 V, I_E = 0			10	µA
Emitter cutoff current		I_{EBO}	V_{EB} = 5 V, I_C = 0			50	µA
Collector to emitter voltage	2SD1271	V_{CEO}	I_C = 10 mA, I_B = 0	80			V
	2SD1271A			100			
Forward current transfer ratio		h_{FE1}	V_{CE} = 2 V, I_C = 0.1 A	45			
		h_{FE2} *	V_{CE} = 2 V, I_C = 3 A	90		260	
Collector to emitter saturation voltage		$V_{CE(sat)}$	I_C = 5 A, I_B = 0.25 A			0.5	V
Base to emitter saturation voltage		$V_{BE(sat)}$	I_C = 5 A, I_B = 0.25 A			1.5	V
Transition frequency		f_T	V_{CE} = 10 V, I_C = 0.5 A, f = 10 MHz		30		MHz
Turn-on time		t_{on}	I_C = 3 A, I_{B1} = 0.3 A, I_{B2} = − 0.3 A, V_{CC} = 50 V		0.5		µs
Storage time		t_{stg}			1.5		µs
Fall time		t_f			0.1		µs

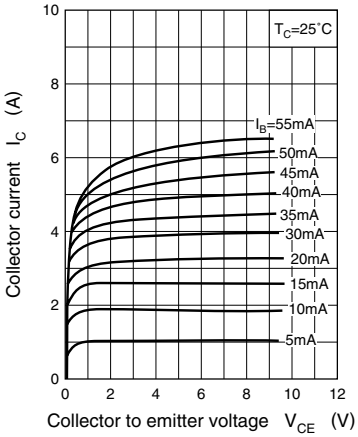
Note) *: Rank classification

Rank	Q	P
h_{FE2}	90 to 180	130 to 260

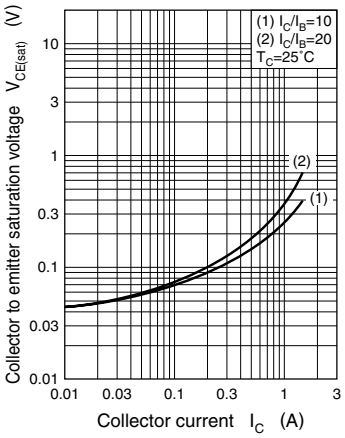
P_C — T_a



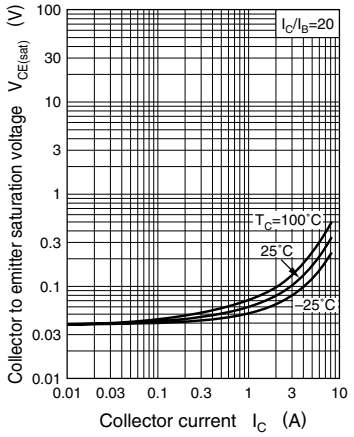
I_C — V_{CE}



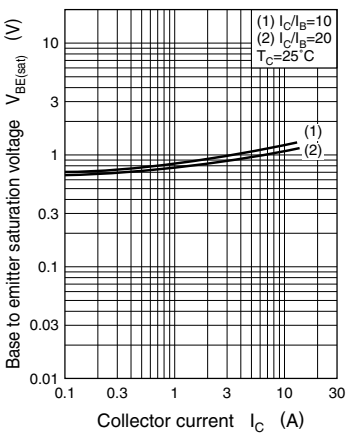
$V_{CE(sat)}$ — I_C



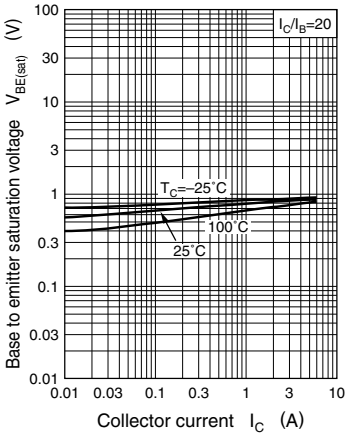
$V_{CE(sat)}$ — I_C



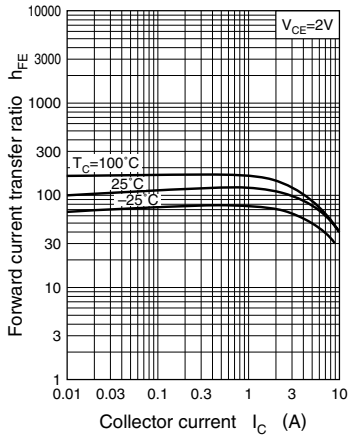
$V_{BE(sat)}$ — I_C



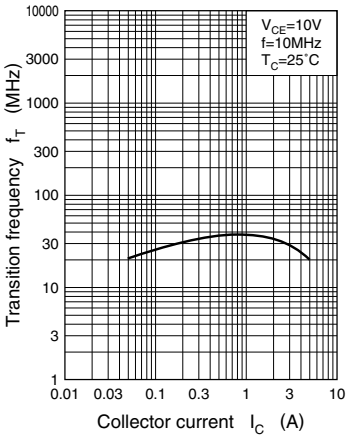
$V_{BE(sat)}$ — I_C



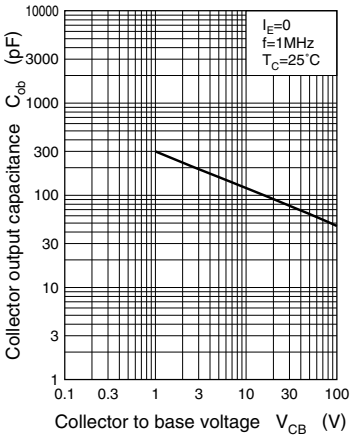
h_{FE} — I_C



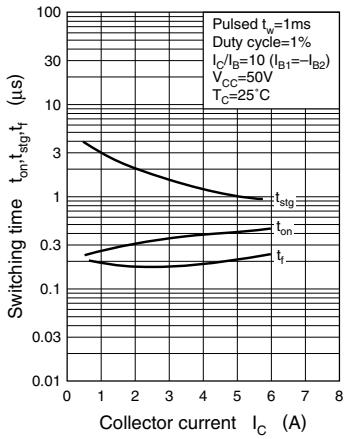
f_T — I_C



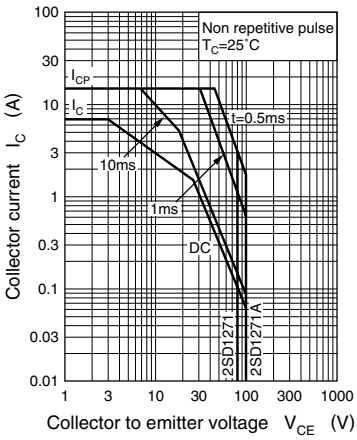
C_{ob} — V_{CB}



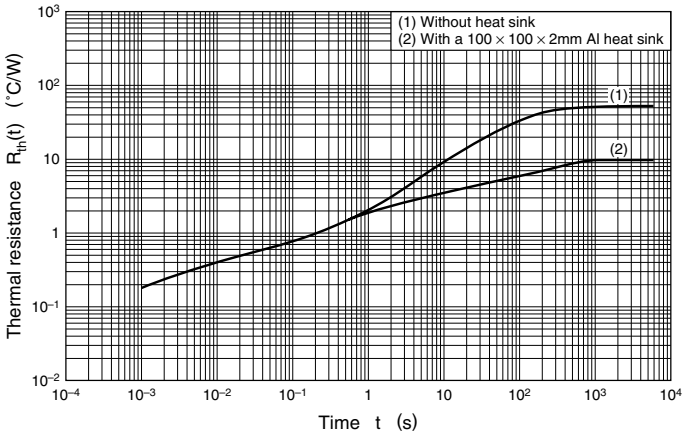
t_{on}, t_{stg}, t_f — I_C



Area of safe operation (ASO)



$R_{th(t)}$ — t



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