2SC4421

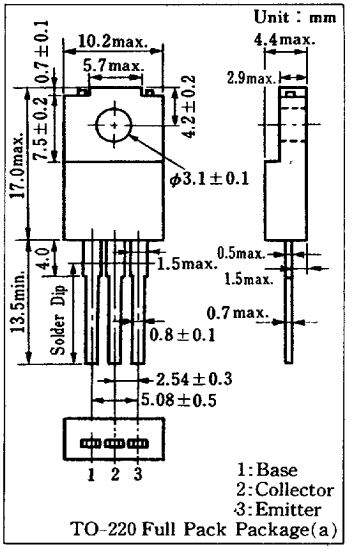
Silicon NPN Triple-Diffused Planar Type

High Breakdown Voltage, High Speed Switching

■ Features

- High speed switching
- High collector-base voltage (V_{CBO})
- Wide area of safety operation (ASO)
- Good linearity of DC current gain (h_{FE})
- "Full Pack" package for simplified mounting on a heat sink with one screw

■ Package Dimensions



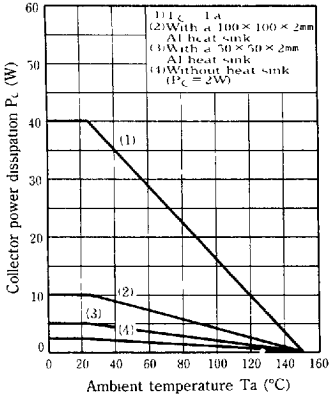
■ Absolute Maximum Ratings (Tc=25°C)

Item		Symbol	Value	Unit
Collector-base voltage		V_{CBO}	500	V
Collector-emitter voltage		V_{CES}	500	V
		V_{CEO}	400	V
Emitter-base voltage		V_{EBO}	7	V
Peak collector current		I_{CP}	6	A
Collector current		I_C	3	A
Base current		I_B	1.2	A
Collector power dissipation	T_C=25°C	P_C	40	W
	Ta=25°C		2	
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	−55~+150	°C

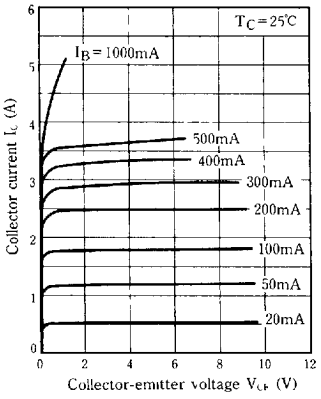
■ Electrical Characteristics (Tc=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CBO}	V_{CB}=500V, I_E=0			100	μA
Emitter cutoff current	I_{EBO}	V_{EB}=5V, I_C=0			100	μA
Collector-emitter voltage	V_{CEO}	I_C=10mA, I_B=0	400			V
DC current gain	h_{FE1}	V_{CE}=5V, I_C=0.1A	10			
	h_{FE2}	V_{CE}=5V, I_C=1.5A	6			
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	I_C=1.5A, I_B=0.3A			1.5	V
Base-emitter saturation voltage	$V_{BE\ (sat)}$	I_C=1.5A, I_B=0.3A			1.5	V
Transition frequency	f_T	V_{CE}=10V, I_C=0.2A, f=1MHz		5		MHz
Turn-on time	t_{on}	I_C=1.5A			0.5	μs
Storage time	t_{stg}	I_{B1}=0.3A, I_{B2}=−0.6A			2.0	μs
Collector current fall time	t_f	V_{CC}=150V			0.1	μs

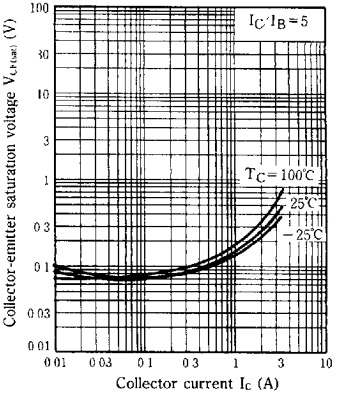
$P_C - Ta$



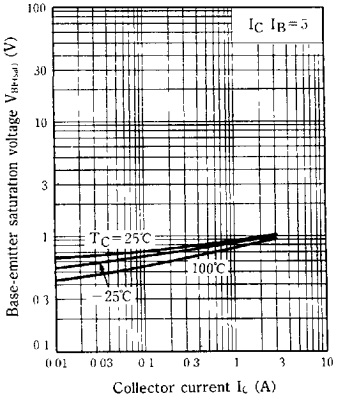
$I_C - V_{CE}$



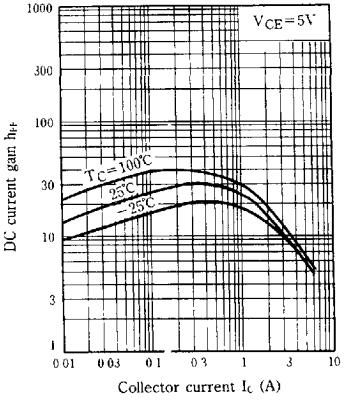
$V_{CE\ (sat)} - I_C$



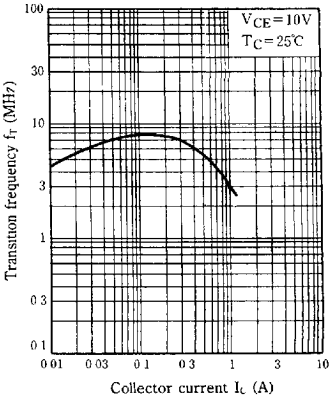
$V_{BE\ (sat)} - I_C$



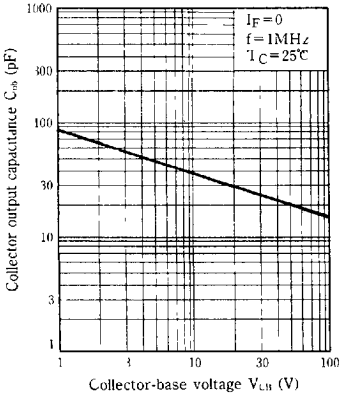
$h_{FE} - I_C$



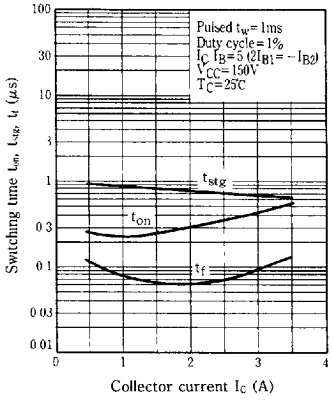
$f_T - I_C$



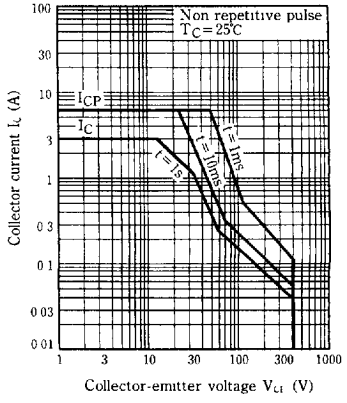
$C_{ob} - V_{CB}$



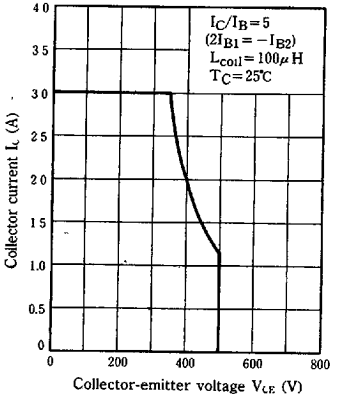
$t_{on}, t_{stg}, t_f - I_C$



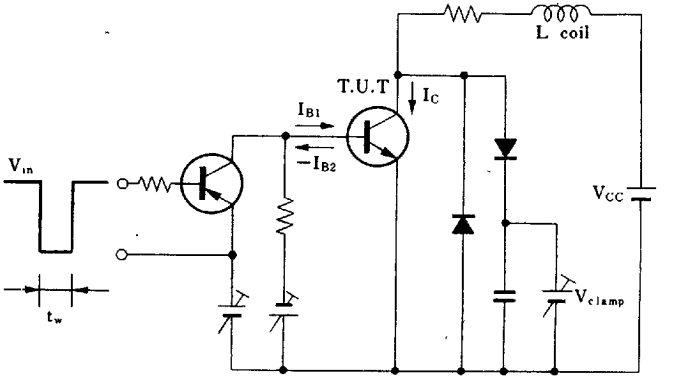
Safety operation area-forward bias (ASO)



Safety operation area-reverse bias (ASO)



Measurement circuit of reverse bias ASO



$R_{th(t)}-t$