

2SC5037, 2SC5037A

Silicon NPN triple diffusion planar type

For high breakdown voltage high-speed switching

■ Features

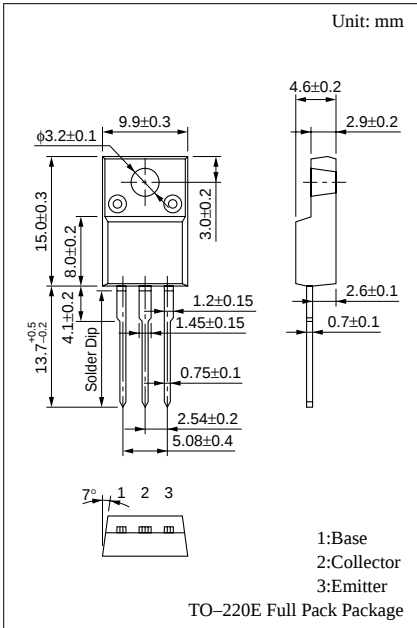
- High-speed switching
- High collector to base voltage V_{CBO}
- Wide area of safe operation (ASO)
- Satisfactory linearity of forward current transfer ratio h_{FE}
- Full-pack package with outstanding insulation, which can be installed to the heat sink with one screw

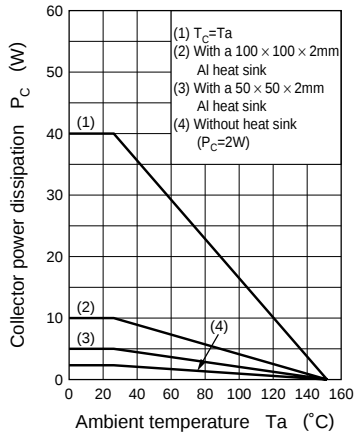
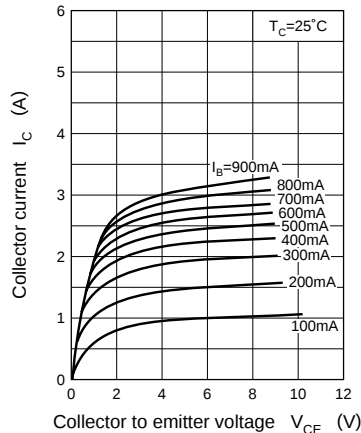
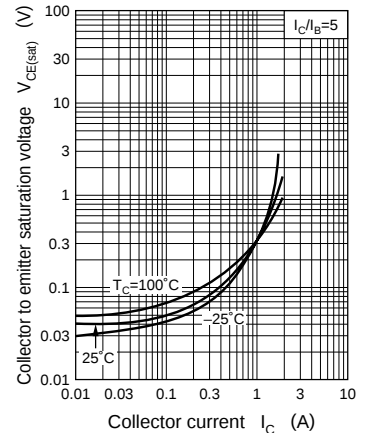
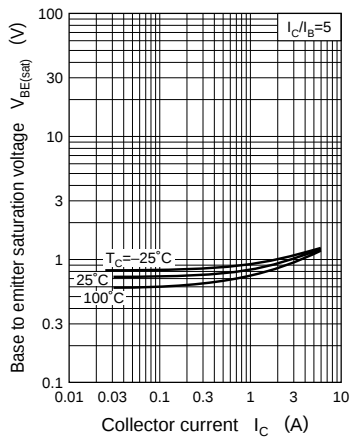
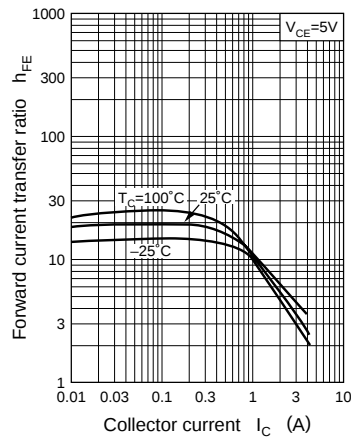
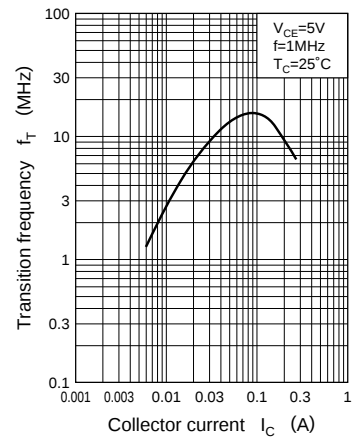
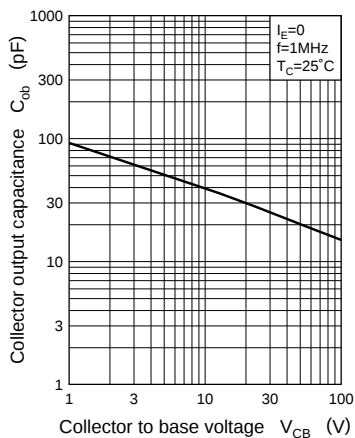
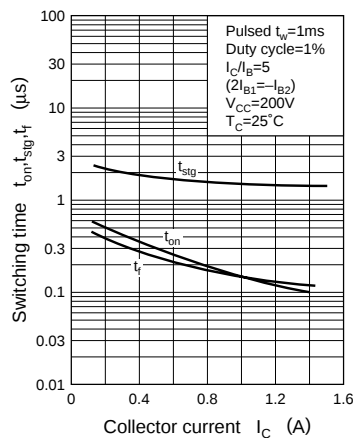
■ Absolute Maximum Ratings ($T_C=25^\circ\text{C}$)

Parameter		Symbol	Ratings	Unit
Collector to base voltage	2SC5037	V_{CBO}	900	V
	2SC5037A		1000	
Collector to emitter voltage	2SC5037	V_{CES}	900	V
	2SC5037A		1000	
Collector to emitter voltage		V_{CEO}	800	V
Emitter to base voltage		V_{EBO}	7	V
Peak collector current		I_{CP}	5	A
Collector current		I_C	3	A
Base current		I_B	1	A
Collector power dissipation	$T_C=25^\circ\text{C}$	P_C	40	W
	$T_a=25^\circ\text{C}$		2	
Junction temperature		T_j	150	$^\circ\text{C}$
Storage temperature		T_{stg}	-55 to +150	$^\circ\text{C}$

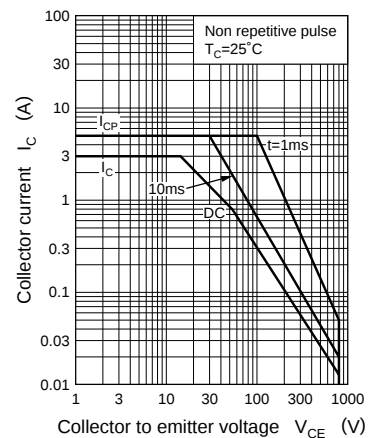
■ Electrical Characteristics ($T_C=25^\circ\text{C}$)

Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	2SC5037	I _{CBO}	V _{CB} = 900V, I _E = 0			50	μA
	2SC5037A		V _{CB} = 1000V, I _E = 0			50	
Emitter cutoff current		I _{EBO}	V _{EB} = 7V, I _C = 0			50	μA
Collector to emitter voltage		V _{CEO}	I _C = 10mA, I _B = 0	800			μA
Forward current transfer ratio		h _{FE1}	V _{CE} = 5V, I _C = 0.1A	8			V
		h _{FE2}	V _{CE} = 5V, I _C = 0.8A	6			
Collector to emitter saturation voltage		V _{CE(sat)}	I _C = 0.8A, I _B = 0.16A			1.5	V
Base to emitter saturation voltage		V _{BE(sat)}	I _C = 0.8A, I _B = 0.16A			1.5	V
Transition frequency		f _T	V _{CE} = 5V, I _C = 0.15A, f = 1MHz		10		MHz
Turn-on time		t _{on}	I _C = 0.8A, I _{B1} = 0.16A, I _{B2} = − 0.32A, V _{CC} = 250V			0.7	μs
Storage time		t _{stg}				2.5	μs
Fall time		t _f				0.3	μs

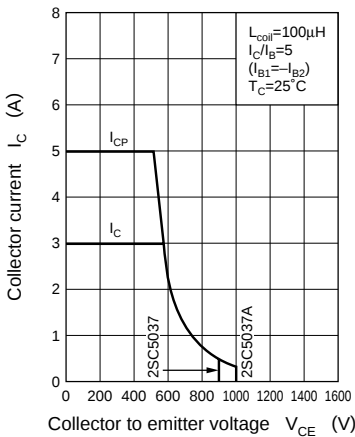


$P_C - T_a$  $I_C - V_{CE}$  $V_{CE(sat)} - I_C$  $V_{BE(sat)} - I_C$  $h_{FE} - I_C$  $f_T - I_C$  $C_{ob} - V_{CB}$  $t_{on}, t_{stg}, t_f - I_C$ 

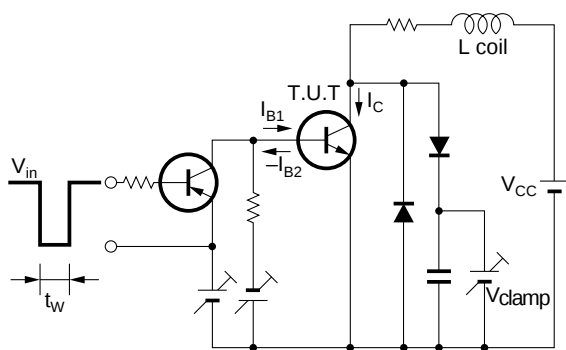
Area of safe operation (ASO)



Area of safe operation, reverse bias ASO



Reverse bias ASO measuring circuit



$R_{th(t)} - t$

