

Features

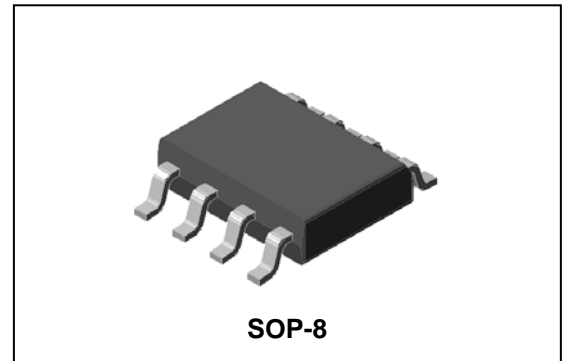
- Low $V_{CE(sat)}=0.5V$ (Typ.)
- Simplified circuit design
- Reduced component count

Applications

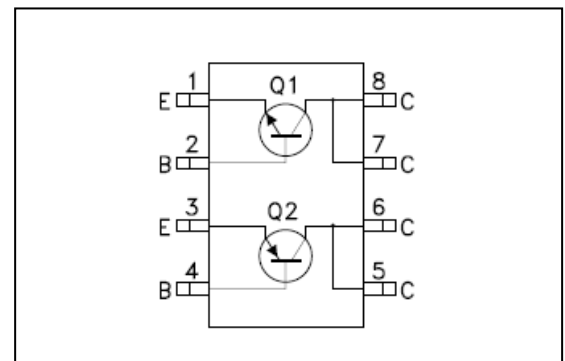
- Push-Pull or Totem-Pole configuration
- MOSFET and IGBT gate driving
- Motor, relay and solenoid driving

Description

The SUT290 is a Hybrid dual NPN-PNP complementary power bipolar transistor manufactured by using the latest low voltage planar technology. The SUT290 is housed in dual island SOP-8 package with separated terminals for higher assembly flexibility, specifically recommended to be used in Push-Pull or Totem Pole configuration as post IGBTs and MOSFETs driver.



Internal schematic diagram



Ordering Information

Type NO.	Marking	Package Code
SUT290	SUT290	SOP-8

Absolute Maximum Ratings

(Ta=25°C)

Characteristic	Symbol	Rating		Unit
		Tr1	Tr2	
Collector-base voltage	V_{CBO}	40	-40	V
Collector-emitter voltage	V_{CEO}	32	-32	V
Emitter-base voltage	V_{EBO}	5	-5	V
Collector current	I_C	2	-2	A
Power dissipation	P_D^*	2		W/TOTAL
		1.4		W/ELEMENT
Junction temperature	T_J	150		°C
Storage temperature range	T_{stg}	-55 ~ 150		°C

*: When mounted on 40x40x0.8 mm ceramic substrate

Electrical Characteristics [Tr1]

(Ta=25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	BV_{CBO}	$I_C=50\mu A, I_E=0$	40	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	$I_C=1mA, I_B=0$	32	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	$I_C=50\mu A, I_C=0$	5	-	-	V
Collector cut-off current	I_{CBO}	$V_{CB}=20V, I_E=0$	-	-	1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=4V, I_C=0$	-	-	1	μA
DC current gain	h_{FE}	$V_{CE}=3V, I_C=0.5A$	120	-	320	-
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=2A, I_B=200mA$	-	0.5	0.8	V
Transition frequency	f_T	$V_{CE}=5V, I_C=10mA$	-	100	-	MHz
Collector output capacitance	C_{ob}	$V_{CB}=10V, I_E=0, f=1MHz$	-	30	-	pF

Electrical Characteristics [Tr2]

(Ta=25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	BV_{CBO}	$I_C=-50\mu A, I_E=0$	-40	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	$I_C=-1mA, I_B=0$	-32	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	$I_C=-50\mu A, I_C=0$	-5	-	-	V
Collector cut-off current	I_{CBO}	$V_{CB}=-20V, I_E=0$	-	-	-1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=-4V, I_C=0$	-	-	-1	μA
DC current gain	h_{FE}	$V_{CE}=-3V, I_C=-0.1A$	120	-	320	-
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-2A, I_B=-200mA$	-	-0.5	-0.8	V
Transition frequency	f_T	$V_{CE}=-5V, I_C=-500mA$	-	150	-	MHz
Collector output capacitance	C_{ob}	$V_{CB}=-10V, I_E=0, f=1MHz$	-	50	-	pF

Electrical Characteristic Curves

[TR1]

Fig. 1 $h_{FE} - I_C$

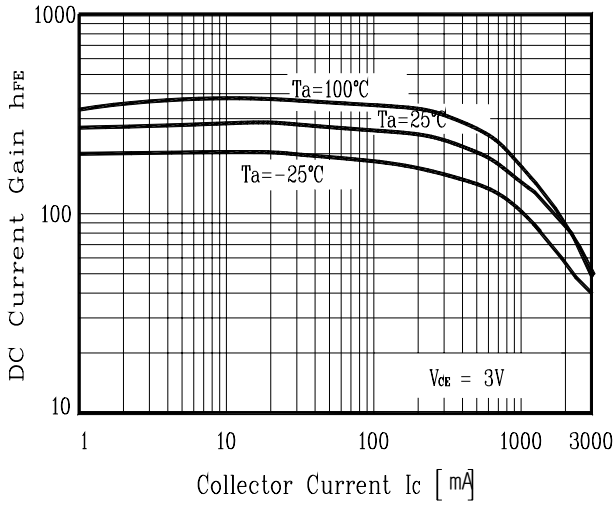


Fig. 2 $I_C - V_{BE}$

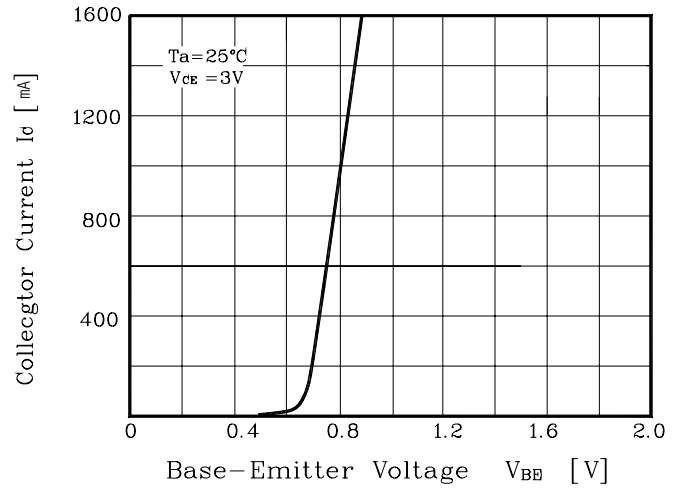


Fig. 3 $I_C - V_{CE}$

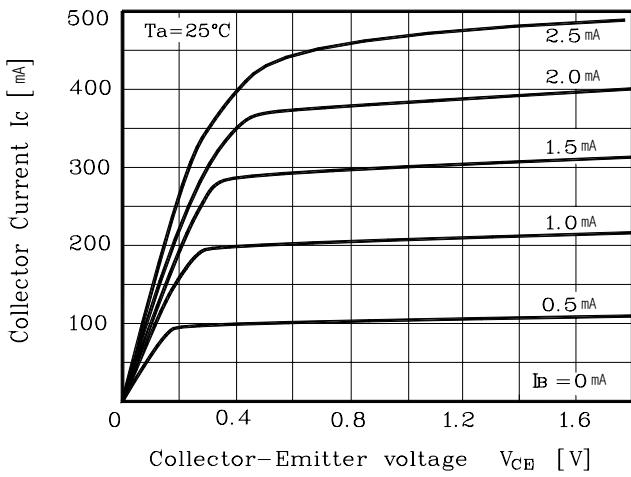
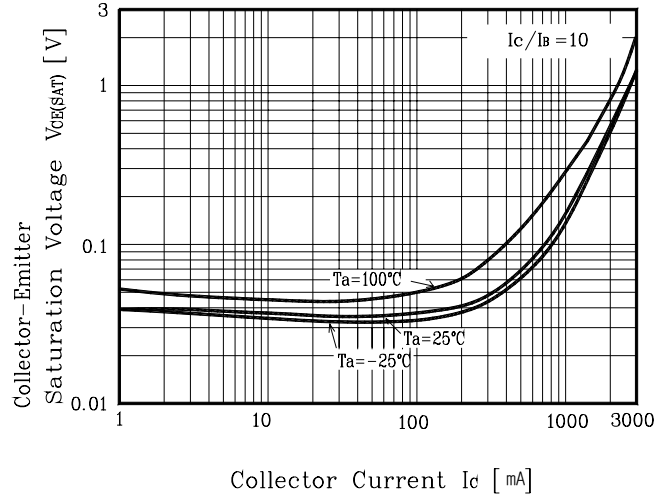


Fig. 4 $V_{CE(sat)} - I_C$



Electrical Characteristic Curves

[TR2]

Fig. 1 $h_{FE} - I_C$

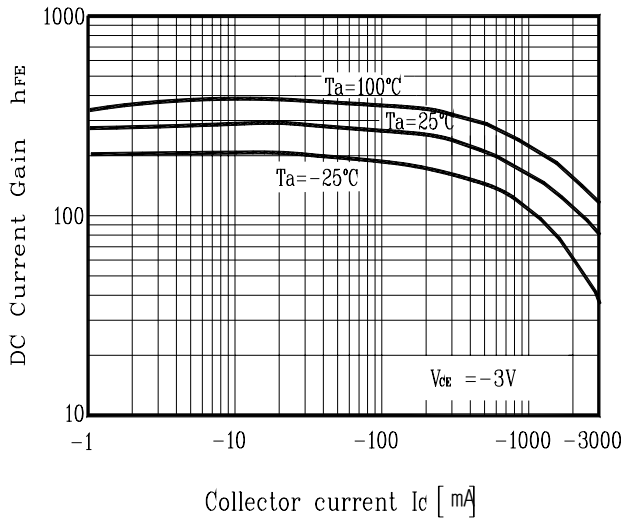


Fig. 2 $I_C - V_{BE}$

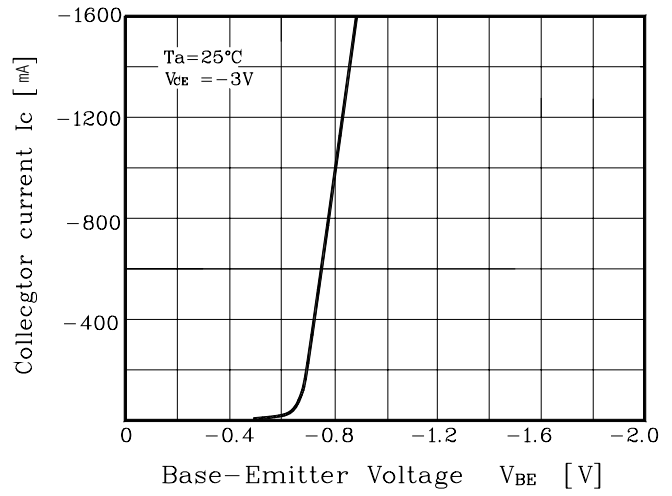


Fig. 3 $I_C - V_{CE}$

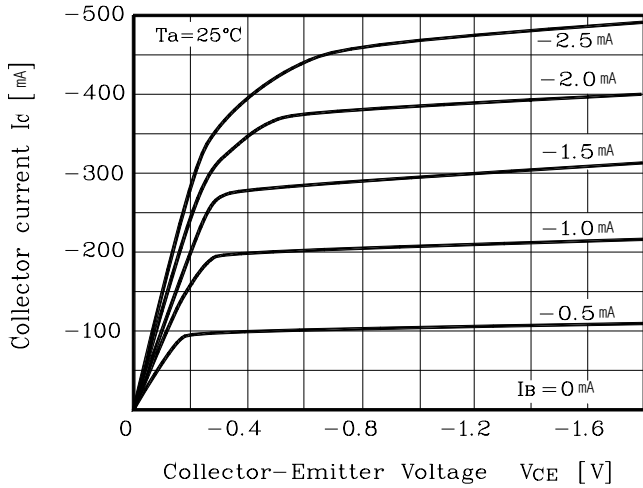
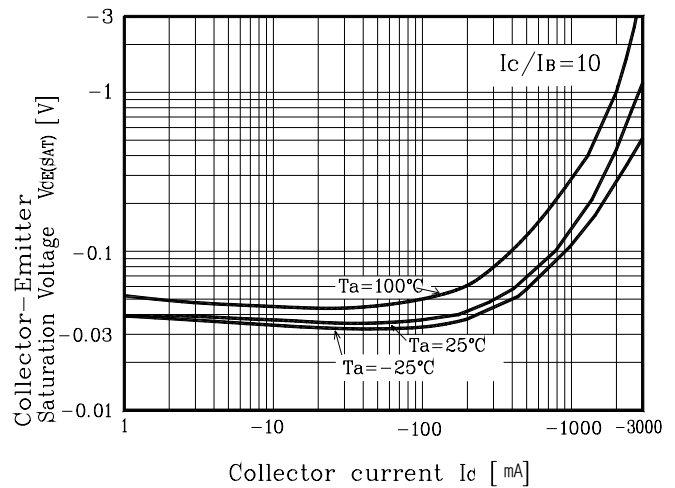
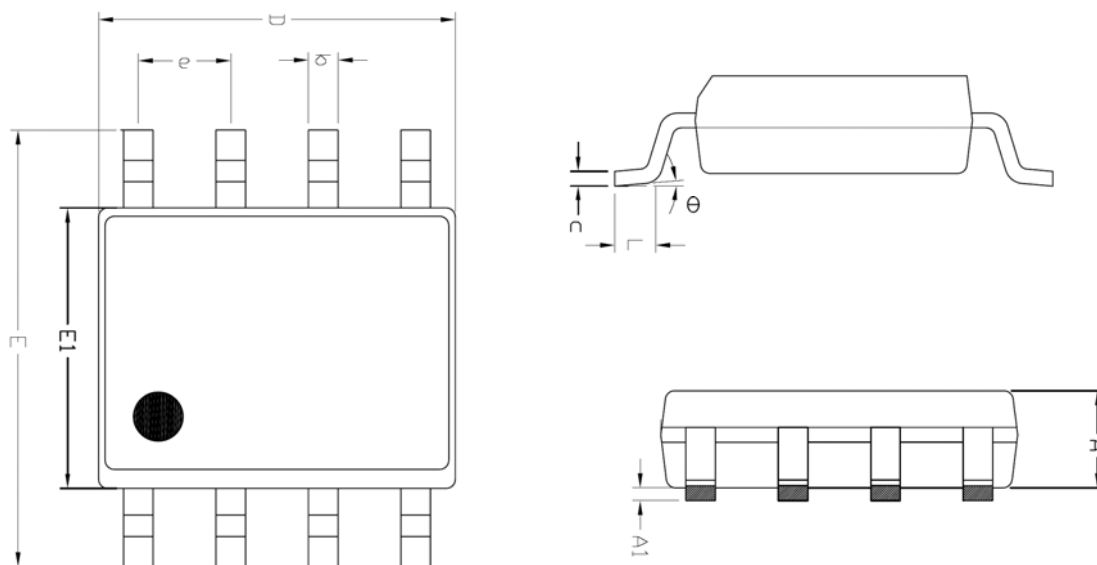


Fig. 4 $V_{CE(sat)} - I_C$

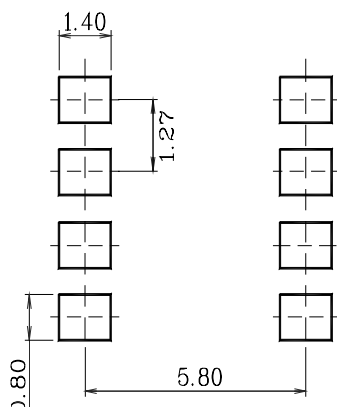


Outline Dimension



SYMBOL	MILLIMETER(mm)			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	1.245	—	1.445	
A1	0.125	0.175	0.275	
b	0.320	0.420	0.520	
c	0.170	0.220	0.270	
D	4.802	4.902	5.002	
E	5.870	6.020	6.170	
E1	3.761	3.861	3.961	
e	1.270 BSC			
L	0.462	0.562	0.662	
theta	0 °	—	8 °	

※Recommend PCB solder land [Unit: mm]



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