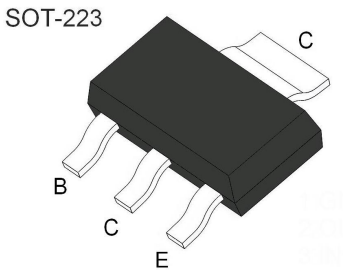
Application

- Power management
  - DC/DC converters
  - Supply line switching
  - Battery charger
  - Linear voltage regulation (LDO).
- Peripheral drivers
  - Driver in low supply voltage applications, e.g.lamps, LEDs
  - Inductive load driver, e.g. relays, buzzers, motors.



Feature

- Low collector-emitter saturation voltage
- High collector current capability: I_C and I I_{CM}
- High collector current gain (h_{FE}) at high I_C
- Higher efficiency leading to less heat generation

Absolute Maximum Rating (T_C=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	BV_{CBO}	60	V
Collector-Emitter Voltage	BV_{CEO}	50	V
Emitter-Base Voltage	BV_{EBO}	6	V
Collector Current(DC)	I_C	3	A
Peak collector current Current	I_{CM}	5	A
Collector Power Dissipation	P_C	1.35	W
Junction Temperature	Tj	150	℃
Storage Temperature	Tstg	-55～150	℃

Thermal Characteristics

Parameter	Symbol	Cnditions	Value	Unit
Resistance from junction to ambientin	$R_{\theta JA}$	in free air; notes 1	92	℃/W
		in free air; notes 2	62.5	℃/W

Notes

1.Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 1cm^2

2.Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 6cm^2

Electrical Characteristics (T_C=25℃ unless otherwise noted)

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Collector-base breakdown voltage	BV_{CBO}	I_C = 100μA，I_E = 0	60			V
Collector-emitter breakdown voltage	BV_{CEO}	I_C = 1mA，I_B = 0	50			V
Emitter-base breakdown voltage	BV_{EBO}	I_E = 100μA，I_C = 0	6			V
Collector cut-off current	I_{CBO}	V_{CB} = 50V，I_B = 0			100	nA
Emitter cut-off current	I_{EBO}	V_{EB} = 5V，I_C = 0			100	nA
DC current gain*	h_{FE}	V_{CE}= 2V，I_C= 500mA V_{CE}= 2V，I_C= 1A V_{CE}= 2V，I_C= 2A	200 200 100			
Collector-emitter saturation voltage*	$V_{CE(sat)}$	I_C = 500mA，I_B = 50mA			-90	mV
		I_C = 1A，I_B = 50mA			-170	mV
		I_C = 2A，I_B = 200mA			-290	mV
Equivalent on-resistance*	R_{CEsat}	I_C = 2A，I_B = 200mA			145	mΩ
Base-emitter saturation voltage*	$V_{BE(sat)}$	I_C = -2A，I_B = -200mA			-1.2	V
Base-emitter tunn-on voltage	$V_{BE(on)}$	V_{CE}= 2V，I_C = 1A			-1.1	V
Transition frequency	f_T	V_{CE} = 5V，I_C = 100mA	100			MHz
Collector capacitance	C_C	V_{CB} = 10V, I_E=I_e=0,f=1MHz			30	pF

Note:

* Pulse test: PW≤300μs, duty cycle≤2% Pulse

Typical Characteristics

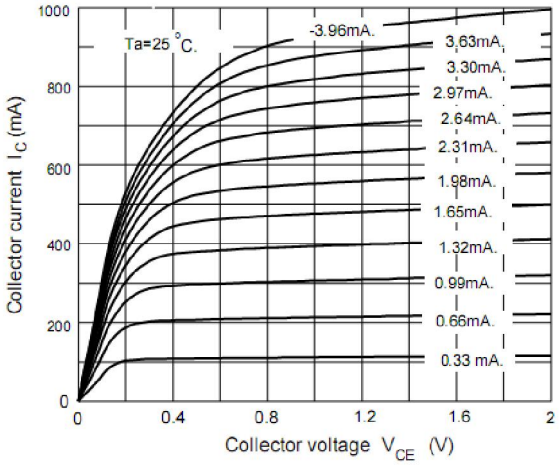


Figure 1. Static Characteristic

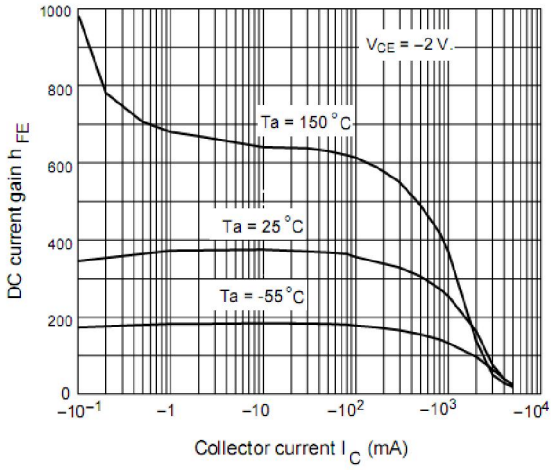


Figure 2. DC current Gain

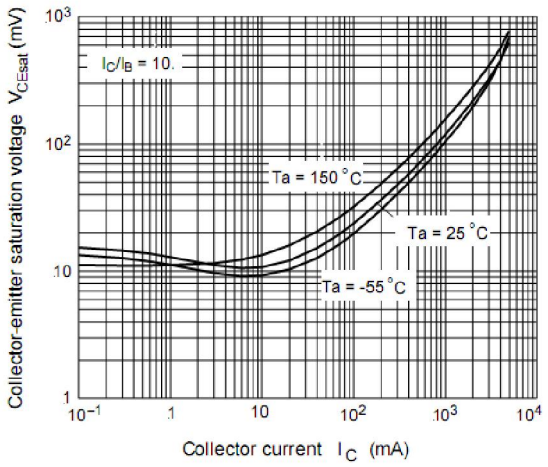


Figure 3. Collector-Emitter Saturation Voltage

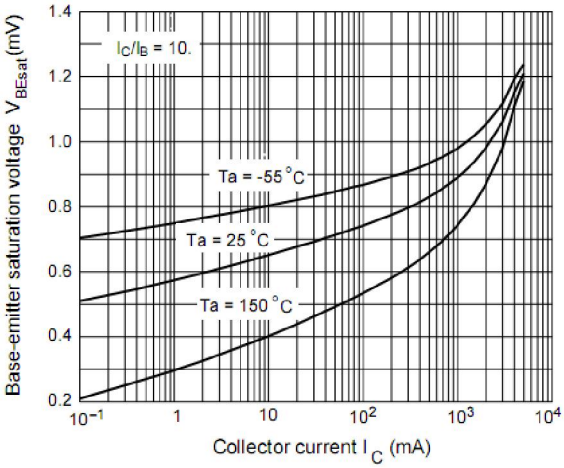


Figure 4. Base-Emitter Saturation Voltage

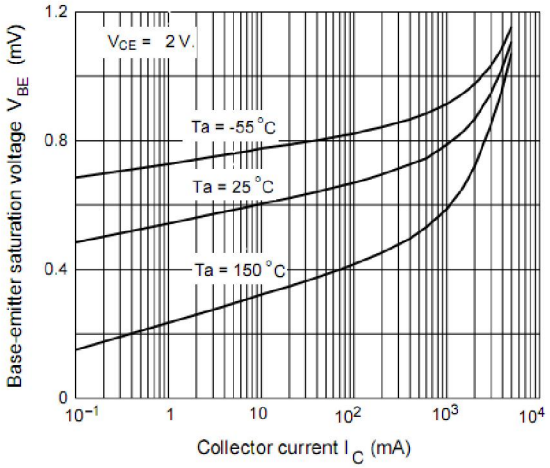


Figure 5. Base-Emitter on Voltage

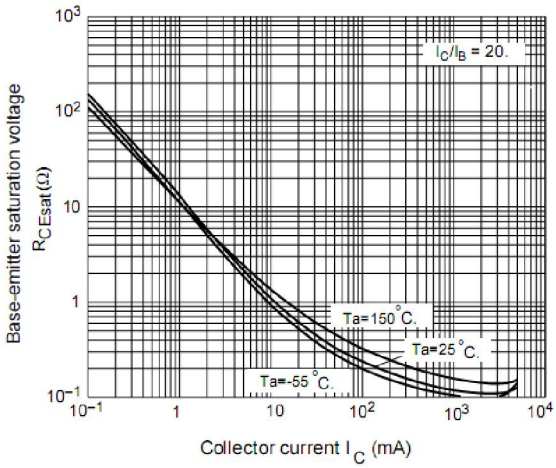
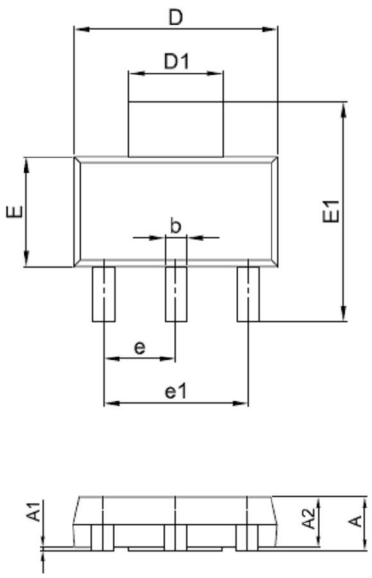


Figure 6. Equivalent on-resistance

Package Dimensions



Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.50	1.80	0.059	0.071
A1	0.00	0.10	0.000	0.004
A2	1.50	1.70	0.059	0.067
b	0.65	0.75	0.026	0.030
c	0.20	0.30	0.008	0.012
D	6.40	6.60	0.252	0.260
D1	2.90	3.10	0.114	0.122
E	3.30	3.70	0.130	0.146
E1	6.85	7.15	0.270	0.281
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	1.65	1.85	0.065	0.073
L1	0.90	1.15	0.035	0.045