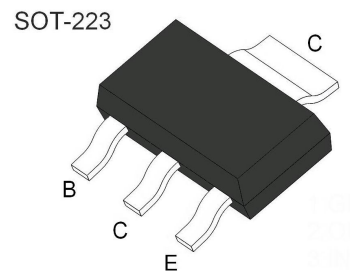


Application

- 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_{CM}
- High collector current gain (h_{FE}) at high I_C
- Higher efficiency leading to less heat generation

Absolute Maximum Rating ($T_C=25^{\circ}\text{C}$ 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	T_j	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55~150	$^{\circ}\text{C}$

Thermal Characteristics

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

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 ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

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

Note:

 * Pulse test: $PW \leq 300\mu\text{s}$, duty cycle $\leq 2\%$ Pulse

Typical Characteristics

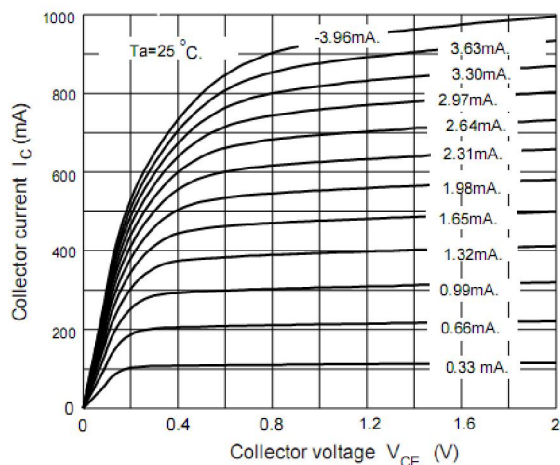


Figure 1. Static Characteristic

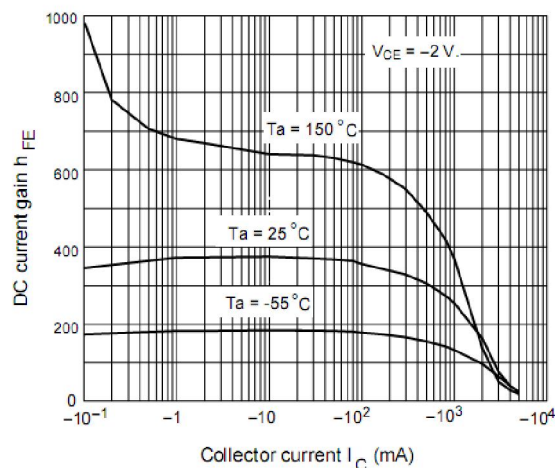


Figure 2. DC current Gain

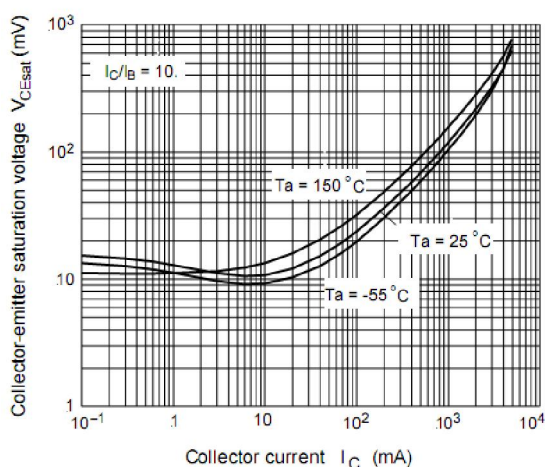


Figure 3. Collector-Emitter Saturation Voltage

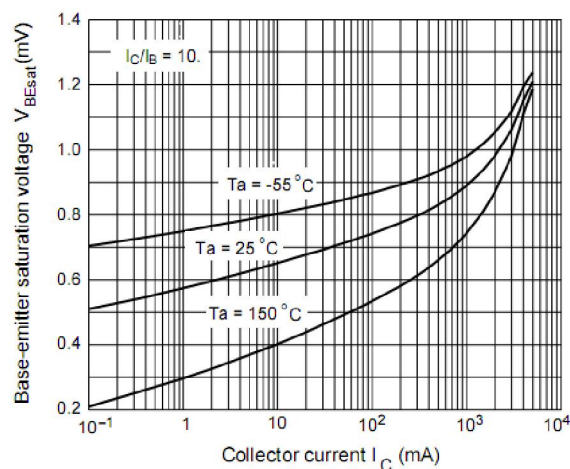


Figure 4. Base-Emitter Saturation Voltage

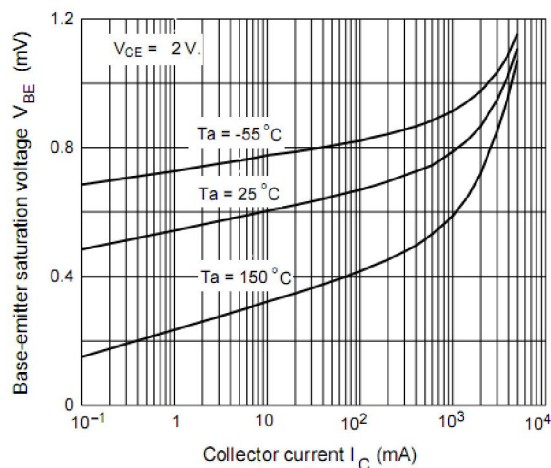


Figure 5. Base-Emitter on Voltage

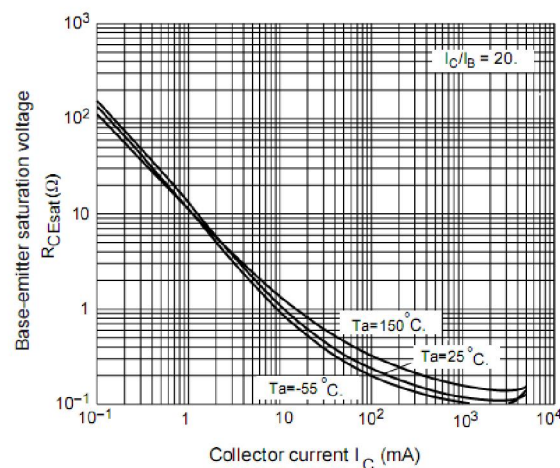


Figure 6. Equivalent on-resistance

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

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