

FEATURE

Low Saturation Voltage


MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	50	V
V_{CEO}	Collector-Emitter Voltage	50	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current -Continuous	2	A
P_C	Power Dissipation	0.35	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	357	$^{\circ}\text{C/W}$
P_{CM}	Maximum Power Dissipation (note 1)	0.625	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient (note 1)	200	$^{\circ}\text{C/W}$
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	$^{\circ}\text{C}$

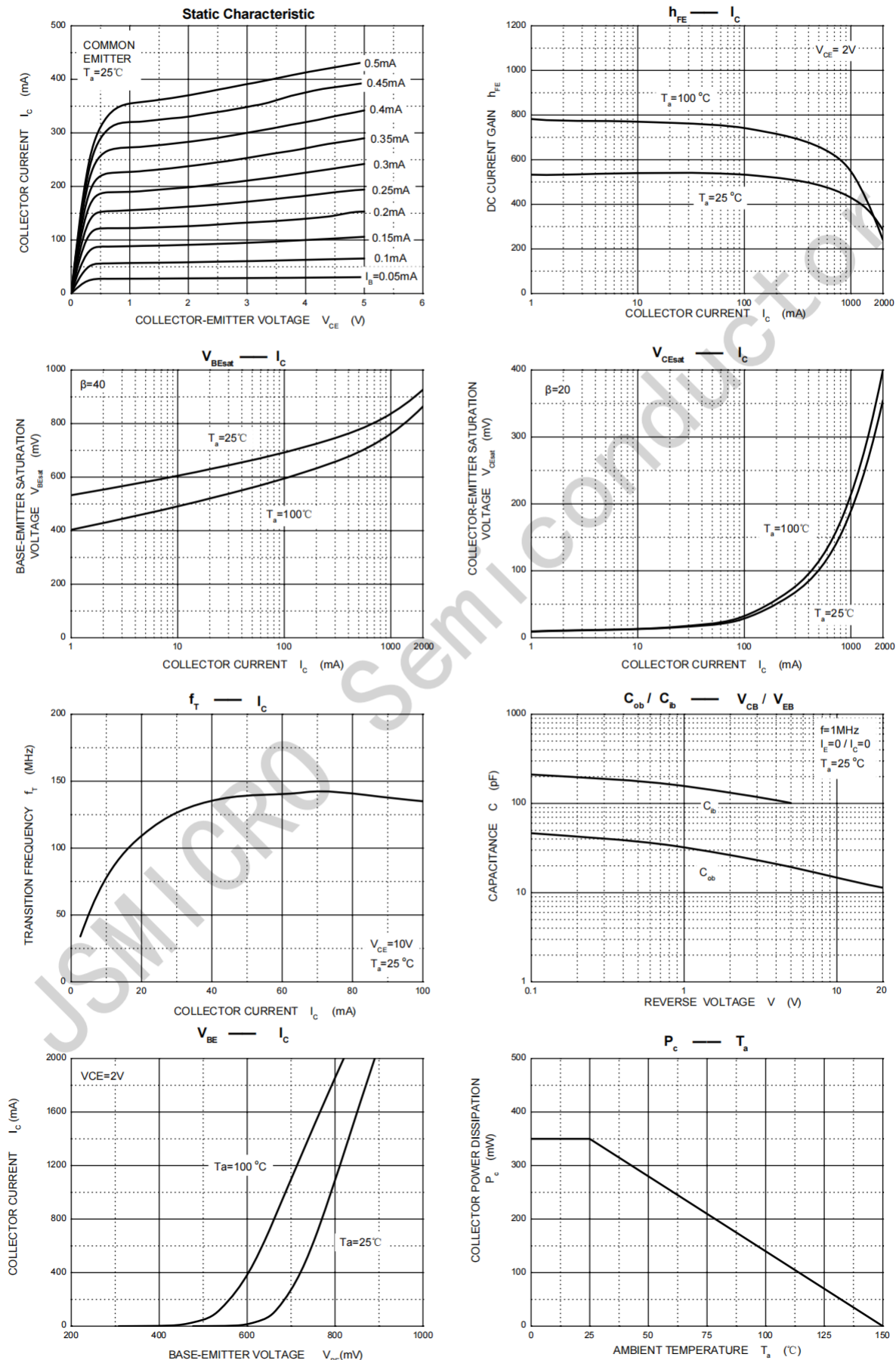
ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	50			V
Collector-emitter breakdown voltage (note 2)	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB}=40\text{V}, I_E=0$			100	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0$			100	nA
DC current gain (note 2)	$h_{FE(1)}$	$V_{CE}=2\text{V}, I_C=10\text{mA}$	200			
	$h_{FE(2)}$	$V_{CE}=2\text{V}, I_C=0.2\text{A}$	300			
	$h_{FE(3)}$	$V_{CE}=2\text{V}, I_C=1\text{A}$	200			
	$h_{FE(4)}$	$V_{CE}=2\text{V}, I_C=2\text{A}$	100			
	$h_{FE(5)}$	$V_{CE}=2\text{V}, I_C=6\text{A}$		40		
Collector-emitter saturation voltage (note 2)	$V_{CE(sat)1}$	$I_C=0.1\text{A}, I_B=10\text{mA}$			20	mV
	$V_{CE(sat)2}$	$I_C=1\text{A}, I_B=10\text{mA}$			200	mV
	$V_{CE(sat)3}$	$I_C=2\text{A}, I_B=100\text{mA}$			220	mV
Base-emitter saturation voltage (note 2)	$V_{BE(sat)}$	$I_C=2\text{A}, I_B=50\text{mA}$			1	V
Base-emitter on voltage (note 2)	$V_{BE(on)}$	$I_C=2\text{A}, V_{CE}=2\text{V}$			1	V
Output capacitance	C_{ob}	$V_{CB}=10\text{V}, f=1\text{MHz}$			20	pF
Turn-on time	$t_{(on)}$	$V_{CC}=10\text{V}, I_C=1\text{A}, I_{B1}=-I_{B2}=10\text{mA}$		170		ns
Turn-off time	$t_{(off)}$			750		ns
Transition frequency	f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=100\text{MHz}$	100			MHz

Notes :

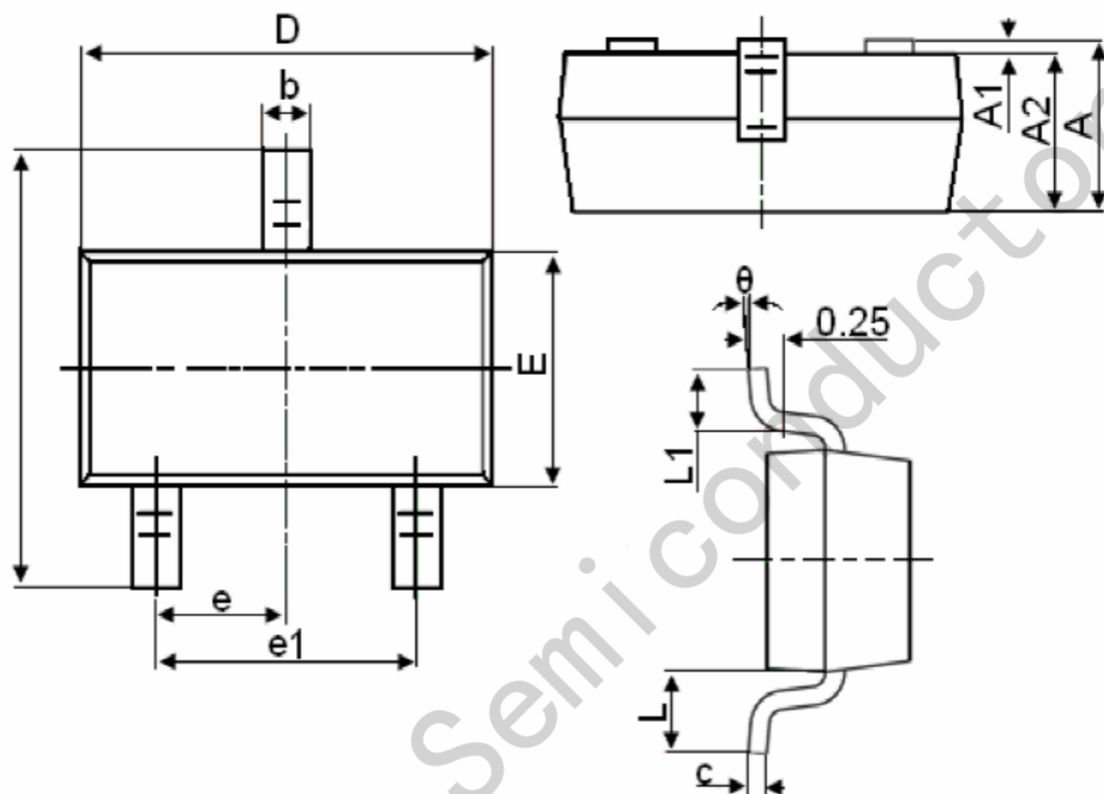
1. Maximum power dissipation is calculated assuming that the device is mounted on a ceramic substrate measuring 15x15x0.6mm.
2. Pulse test: Pulse width $\leq$ 300 μs , duty cycle $\leq$ 2.0%.

Typical Characteristics



Package Information

SOT-23



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°