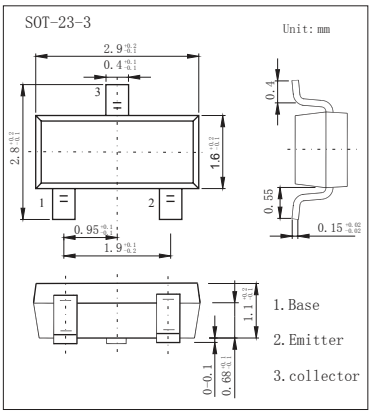
PNP Medium Power Transistor

ZXTP19100CFF

■ Features

- ● BV_{CEO} > -100V
- ● BV_{ECO} > -7V
- ● I_C = -2A Continuous Collector Current
- ● Saturation Voltage $V_{CE(SAT)}$ < -120mV @ -1A
- ● h_{FE} Characterised Up to -2A
- ● $R_{CE(SAT)}$ = 95mΩ
- ● 1.5W Power Dissipation
- ● Complementary NPN Type: ZXTN19100CFF



■ Absolute Maximum Ratings (@T_A = +25℃, unless otherwise specified.)

Parameter		Symbol	Rating	Unit
Collector - Base Voltage		V_{CBO}	-110	V
Collector-Emitter Voltage (Forward blocking)		V_{CEX}	-110	
Collector - Emitter Voltage		V_{CEO}	-100	
Emitter-Collector Voltage (Reverse blocking)		V_{ECO}	-7	
Emitter - Base Voltage		V_{EBO}	-7	
Collector Current - Continuous		I_C	-2	A
Peak Pulse Current		I_{CM}	-3	
Base Current		I_B	-1	
Power Dissipation Linear Derating Factor	(Note 1)	P_D	0.84 6.72	W mW/°C
	(Note 2)		1.34 10.72	
	(Note 3)		1.50 12.0	
	(Note 4)		2.0 16.0	
Thermal Resistance Junction to Ambient	(Note 1)	$R_{\theta JA}$	149	℃/W
	(Note 2)		93	
	(Note 3)		83	
	(Note 4)		60	
Thermal Resistance, Junction to Lead	(Note 5)	$R_{\theta JL}$	43.8	
Junction Temperature		T_J	150	℃
Storage Temperature range		T_{stg}	-55 to 150	

■ ESD Ratings (Note 6)

Parameter	JEDEC Class	Symbol	Rating	Unit
Electrostatic Discharge – Human Body Model	3A	ESD HBM	4,000	V
Electrostatic Discharge – Machine Model	C	ESD MM	400	

Notes: 1. For a device mounted with the exposed collector pad on 15mm x 15mm 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
2. Same as Note 1, except the device is mounted on 25mm x 25mm 2oz copper.
3. Same as Note 1, except the device is mounted on 50mm x 50mm 2oz copper.
4. Same as Note 3, whilst measured at t < 5 seconds.
5. Thermal resistance from junction to solder-point (at the end of the collector lead).
6. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

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■ Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV_{CBO}	I_C= -100 μA	-110			V
Collector-Emitter Breakdown Voltage (Base Open)	BV_{CEX}	I_C = -100μA, R_{BC} < 1kΩ or 0.25V > V_{BC} > -0.25V	-110			
Collector-Emitter Breakdown Voltage (Base Open) (Note 7)	BV_{CEO}	I_C= -10 mA	-100			
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E= -100μA	-7			
Emitter-Collector Breakdown Voltage	BV_{ECX}	I_E = -100μA, R_{BC} < 1kΩ or 0.25V > V_{BC} > -0.25V	-7			
Emitter-Collector Breakdown Voltage (Base Open)	BV_{ECO}	IE= -100μA	-7			
Collector-Base Cutoff Current	I_{CBO}	V_{CB} = -110V			-50	nA
		V_{CB} = -110V, T_A = +100°C			-0.5	μA
Emitter-Base Cutoff Current	I_{EBO}	V_{EB} = -5.6V			-50	nA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = -0.5A, I_B = -20mA			-130	mV
		I_C = -1A, I_B = -100mA			-120	
		I_C = -1A, I_B = -50mA			-225	
		I_C = -2A, I_B = -200mA			-275	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = -2A, I_B = -200mA			-950	
Base-Emitter On Voltage	$V_{BE(ON)}$	I_C = -2A, V_{CE} = -2V			-900	
Static Forward Current Transfer Ratio	h_{FE}	I_C = -100mA, V_{CE} = -2V	200		500	
		I_C = -1A, V_{CE} = -2V	70			
		I_C = -2A, V_{CE} = -2V	20			
Input Capacitance	C_{IBO}	V_{EB} = -0.5V, f = 1MHz		291	400	pF
Output Capacitance	C_{OBO}	V_{CB} = -1V, f = 1MHz		23.5		
DelayTime	t_d	V_{CC} = -10V, I_C = -0.5A, I_{B1} = -I_{B2} = -50mA		24.7		ns
Rise Time	t_r			22.4		
Storage Time	t_s			660		
Fall Time	t_f			107		
Transition Frequency	f_T	I_C = -100mA, V_{CE} = -10V, f = 50MHz		142		MHz

Note 7. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

■ Marking

Marking	1E1/**

**: Date Code

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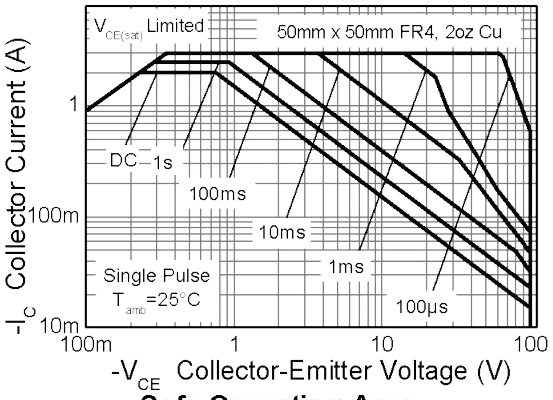
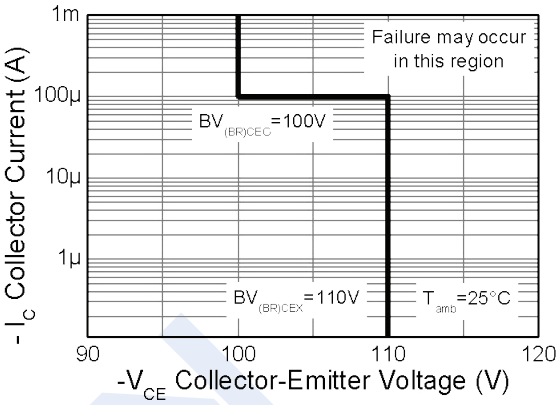
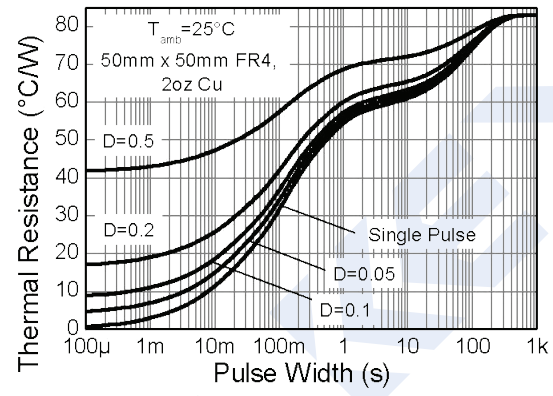
■ Thermal Characteristics and Derating Information



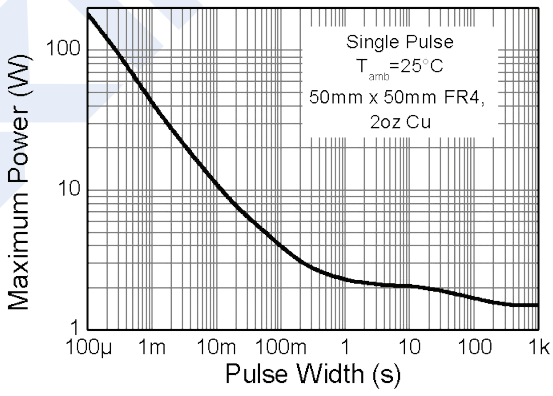
Safe Operating Area



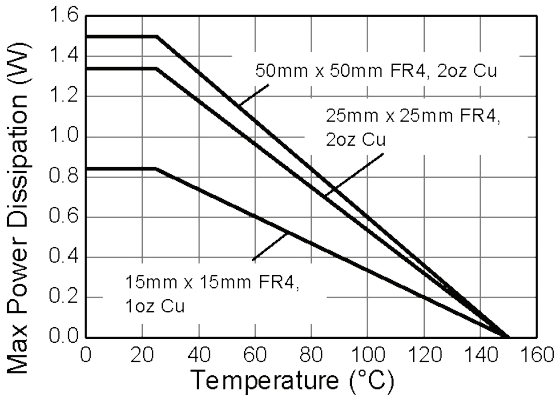
Safe Operating Area



Transient Thermal Impedance



Pulse Power Dissipation



Derating Curve

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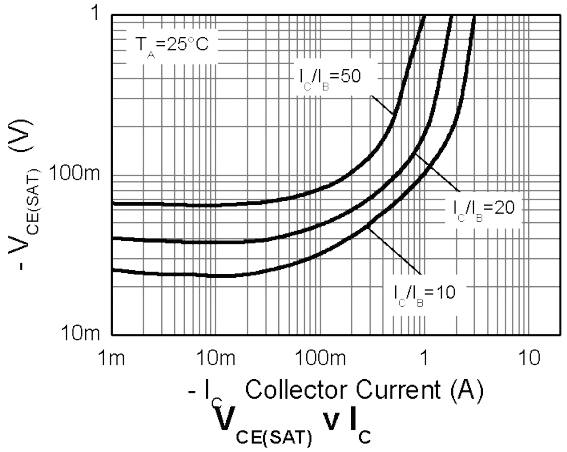
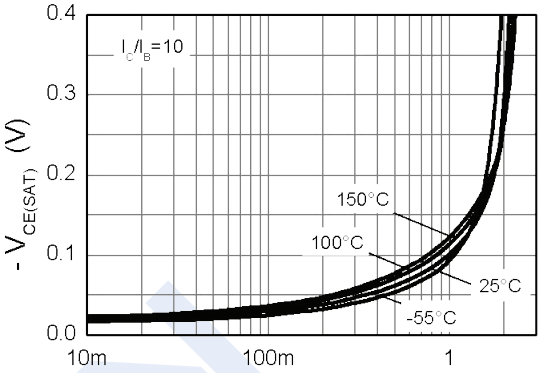
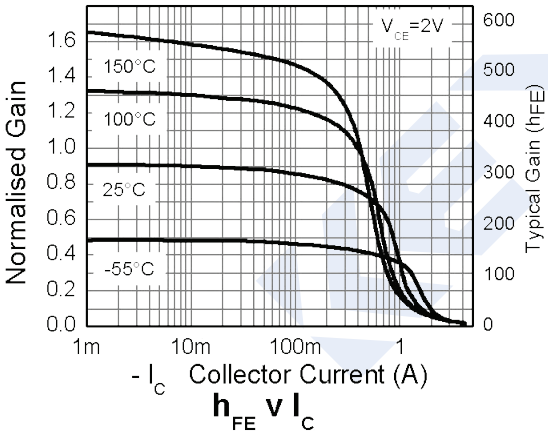
■ Typical Characterisitics



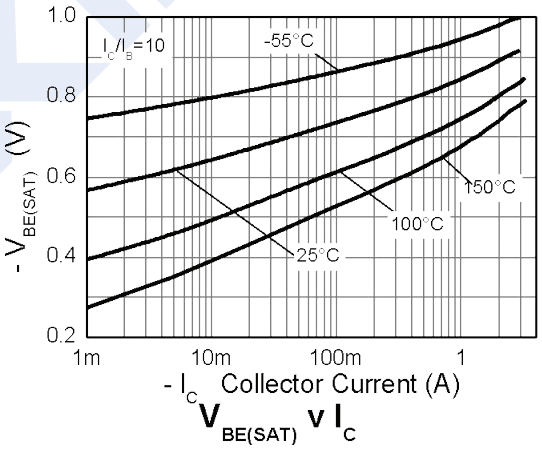
$V_{CE(SAT)}$ v I_C



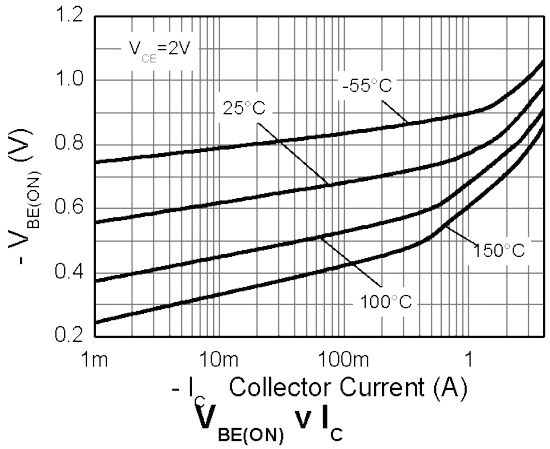
$V_{CE(SAT)}$ v I_C



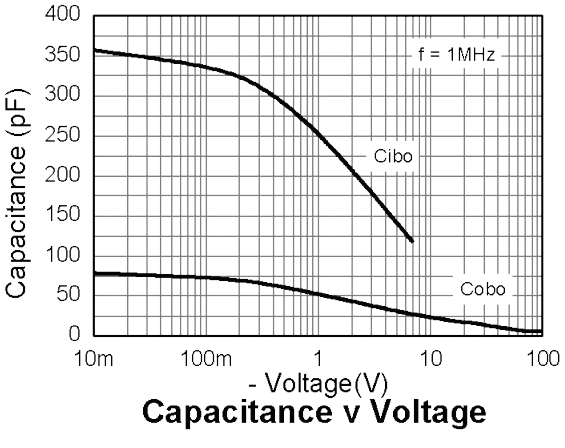
h_{FE} v I_C



$V_{BE(SAT)}$ v I_C



$V_{BE(ON)}$ v I_C



Capacitance v Voltage