

/ Descriptions

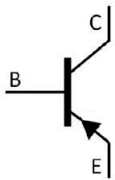
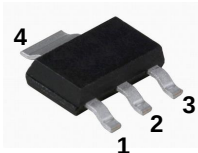
SOT-223 PNP Silicon PNP transistor in a SOT-223 Plastic Package.

/ Features

V_{CEsat} h_{FE}
 High voltage, Low collector-emitter saturation voltage V_{CEsat} , High collector current capability I_C and I_{CM} ,
 High collector current gain h_{FE} at high I_C , Halogen-free Product.

/ Applications

LED LCD
 LED driver for LED chain module, LCD backlighting, Automotive motor management, Switch Mode Power Supply.

/ Equivalent Circuit**/ Pinning**

PIN1 Base PIN 2 4 Collector PIN 3 Emitter

/ h_{FE} Classifications & Marking

/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	-180	V
Collector to Emitter Voltage	V_{CEO}	-140	V
Emitter to Base Voltage	V_{EBO}	-7.0	V
Collector Current - Continuous	I_C	-4.0	A
Peak collector current	I_{CM}	-10	A
Base current	I_B	-500	mA
Total power dissipation	$P_{tot}(T_C=25^{\circ}C)^{(1)}$	0.65	W
	$P_{tot}(T_C=25^{\circ}C)^{(2)}$	1.0	W
	$P_{tot}(T_C=25^{\circ}C)^{(3)}$	1.35	W
Thermal resistance from junction to ambient	$R_{th(j-a)}^{(4)}$	192	K/W
	$R_{th(j-a)}^{(5)}$	125	K/W
	$R_{th(j-a)}^{(6)}$	93	K/W
Thermal resistance from junction to solder point	$R_{th(j-sp)}$	16	K/W
Junction Temperature	T_j	150	
Ambient temperature	T_{amb}	-55 150	
Storage Temperature Range	T_{stg}	-65 150	

Note:

[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for collector 1 cm².

[3] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for collector 6 cm².

[4] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

[5] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for collector 1 cm².

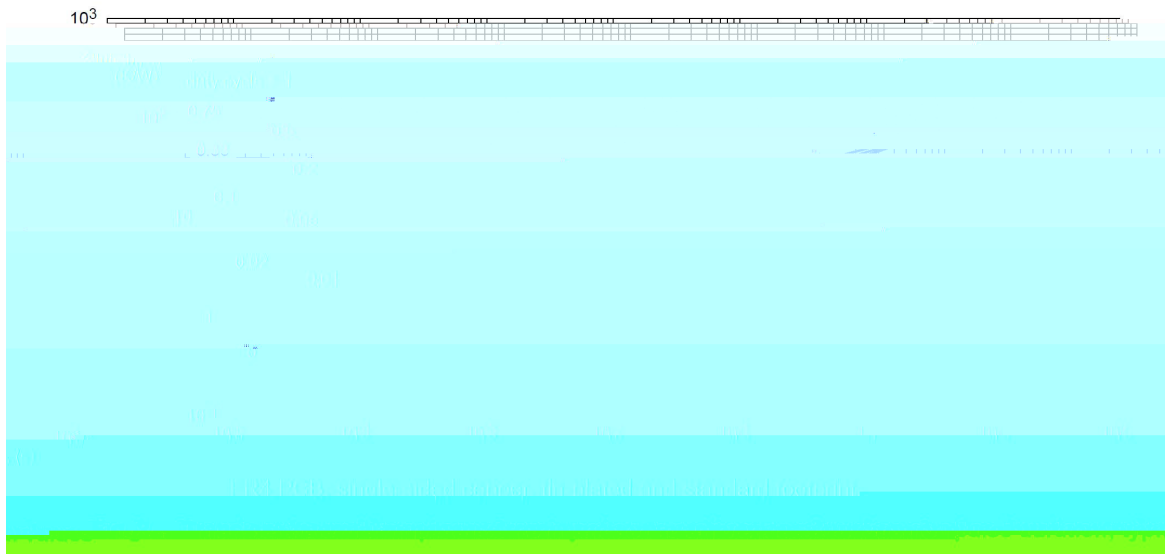
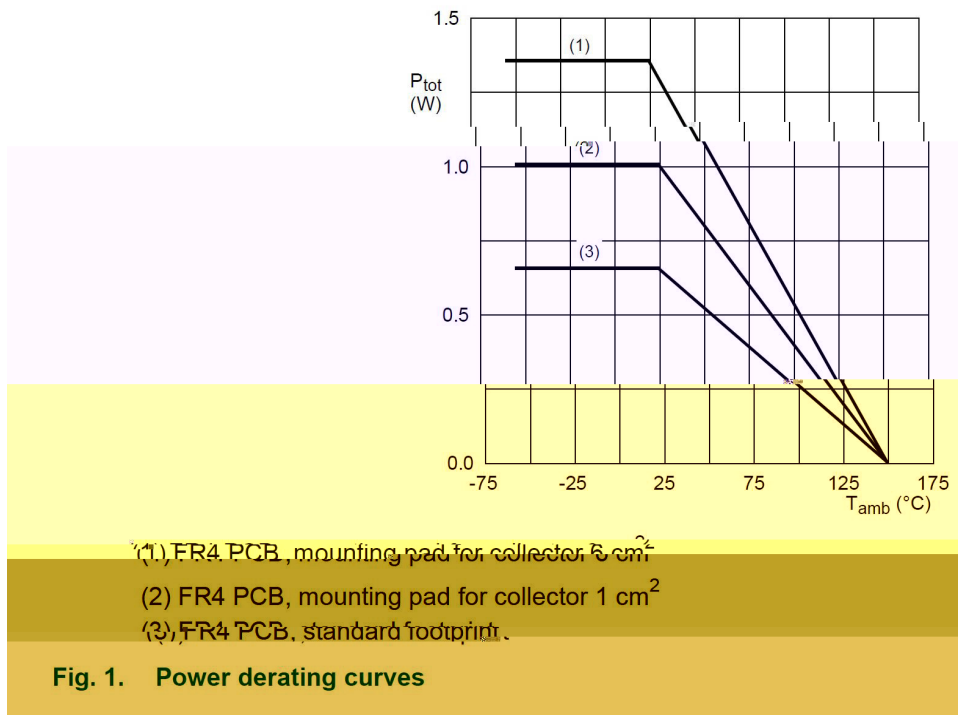
[6] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for collector 6 cm².

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cut-Off Current	I_{CBO}	$V_{CB} = -150\text{ V}$ $I_E = 0\text{ A}$ $T_{amb} = 25\text{ }^{\circ}\text{C}$			-100	nA
		$V_{CB} = -150\text{ V}$ $I_E = 0\text{ A}$ $T_j = 150\text{ }^{\circ}\text{C}$			-50	uA
Collector-emitter cut-off current	I_{CES}	$V_{CE} = -115\text{ V}$ $V_{BE} = 0\text{ V}$ $T_{amb} = 25\text{ }^{\circ}\text{C}$			-100	nA
Emitter-base cut-off current	I_{EBO}	$V_{EB} = -6\text{ V}$ $I_C = 0\text{ A}$ $T_{amb} = 25\text{ }^{\circ}\text{C}$			-100	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE} = -5.0\text{ V}$ $I_C = -10\text{ mA}$ $T_{amb} = 25\text{ }^{\circ}\text{C}$	100	160		
	$h_{FE(2)}$	$V_{CE} = -5\text{ V}$ $I_C = -1\text{ A}$ $t_p \leq 300\mu\text{s}$ $\delta \leq 0.02$ $T_{amb} = 25\text{ }^{\circ}\text{C}$	100	150	300	
	$h_{FE(3)}$	$V_{CE} = -5\text{ V}$ $I_C = -3\text{ A}$ $t_p \leq 300\mu\text{s}$ $\delta \leq 0.02$ $T_{amb} = 25\text{ }^{\circ}\text{C}$	75	100		
	$h_{FE(4)}$	$V_{CE} = -5\text{ V}$ $I_C = -4\text{ A}$ $t_p \leq 300\mu\text{s}$ $\delta \leq 0.02$ $T_{amb} = 25\text{ }^{\circ}\text{C}$	35	50		
			Φ 300 μ 0	0	1	[(

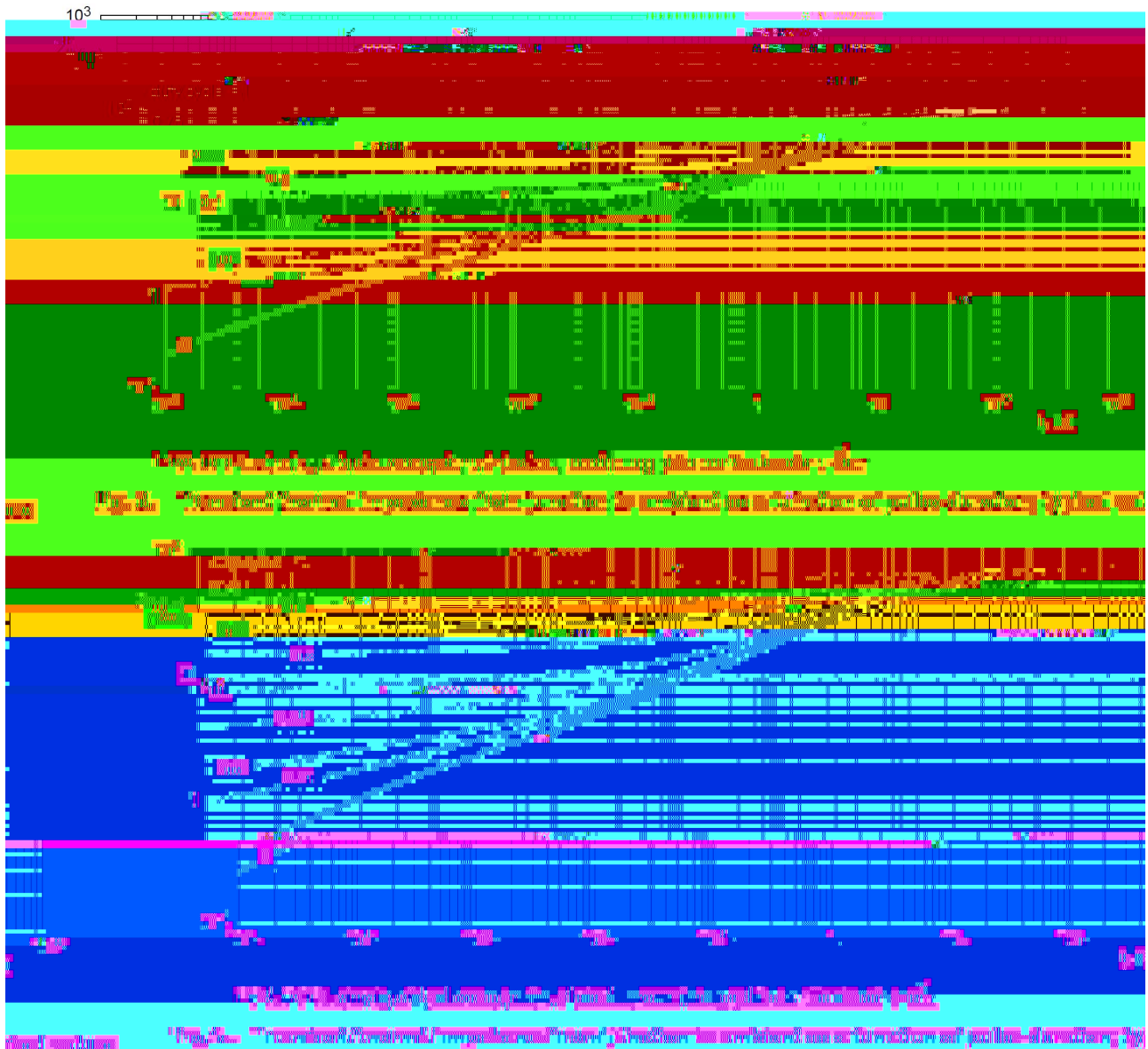
Collector to Emitter Saturation Voltage

 $V_{CE(sat)}$

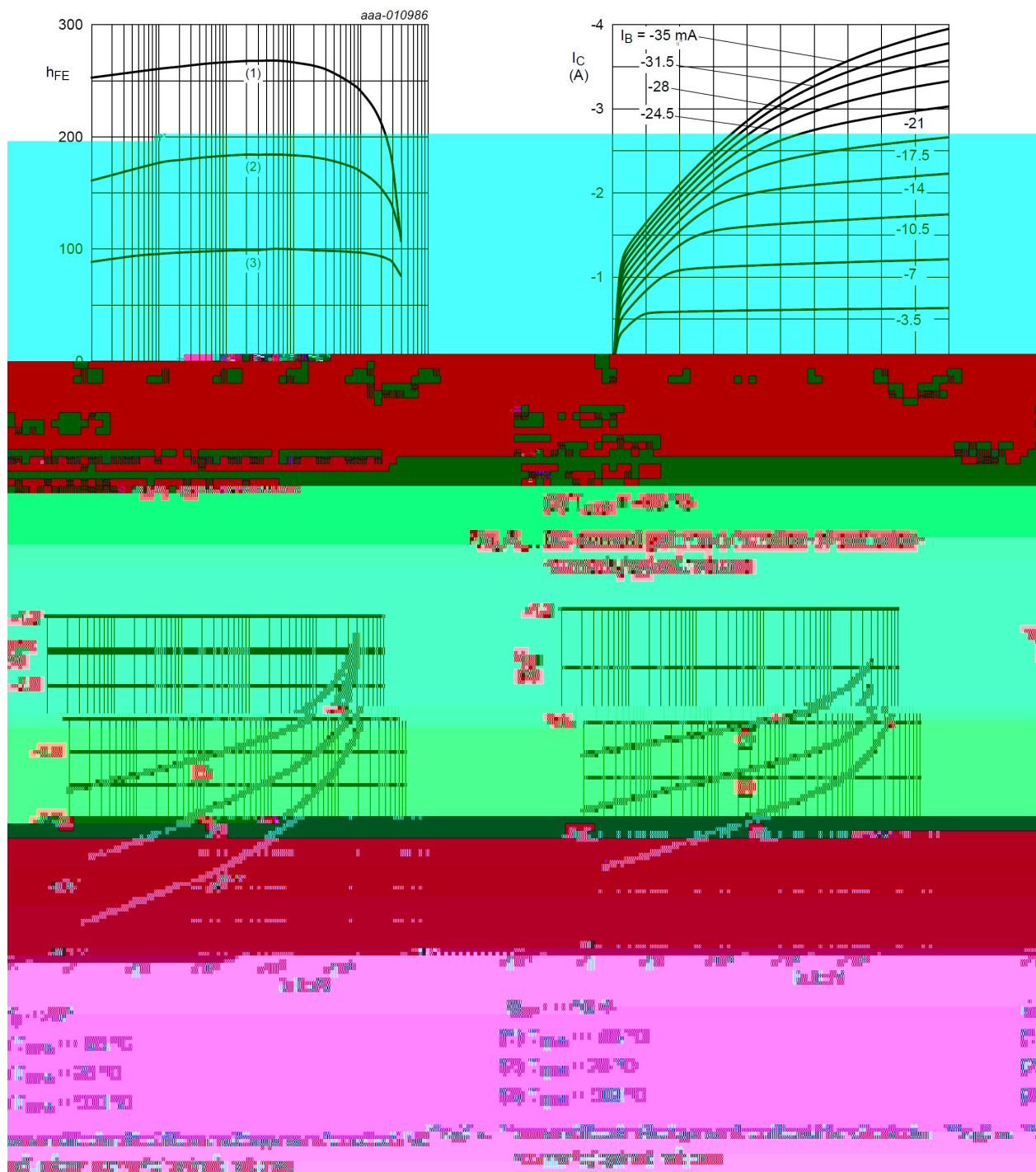
/ Electrical Characteristic Curve



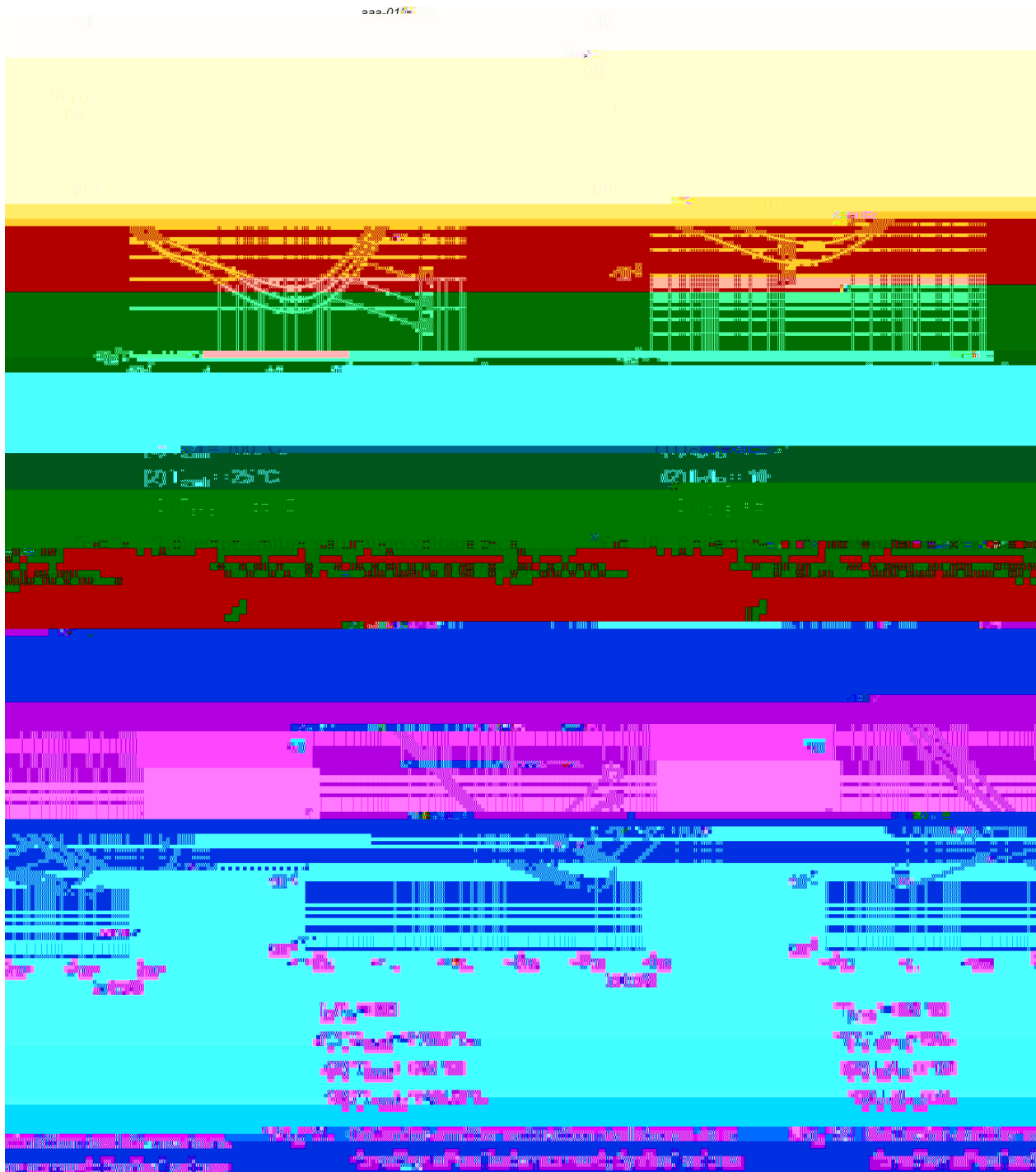
/ Electrical Characteristic Curve



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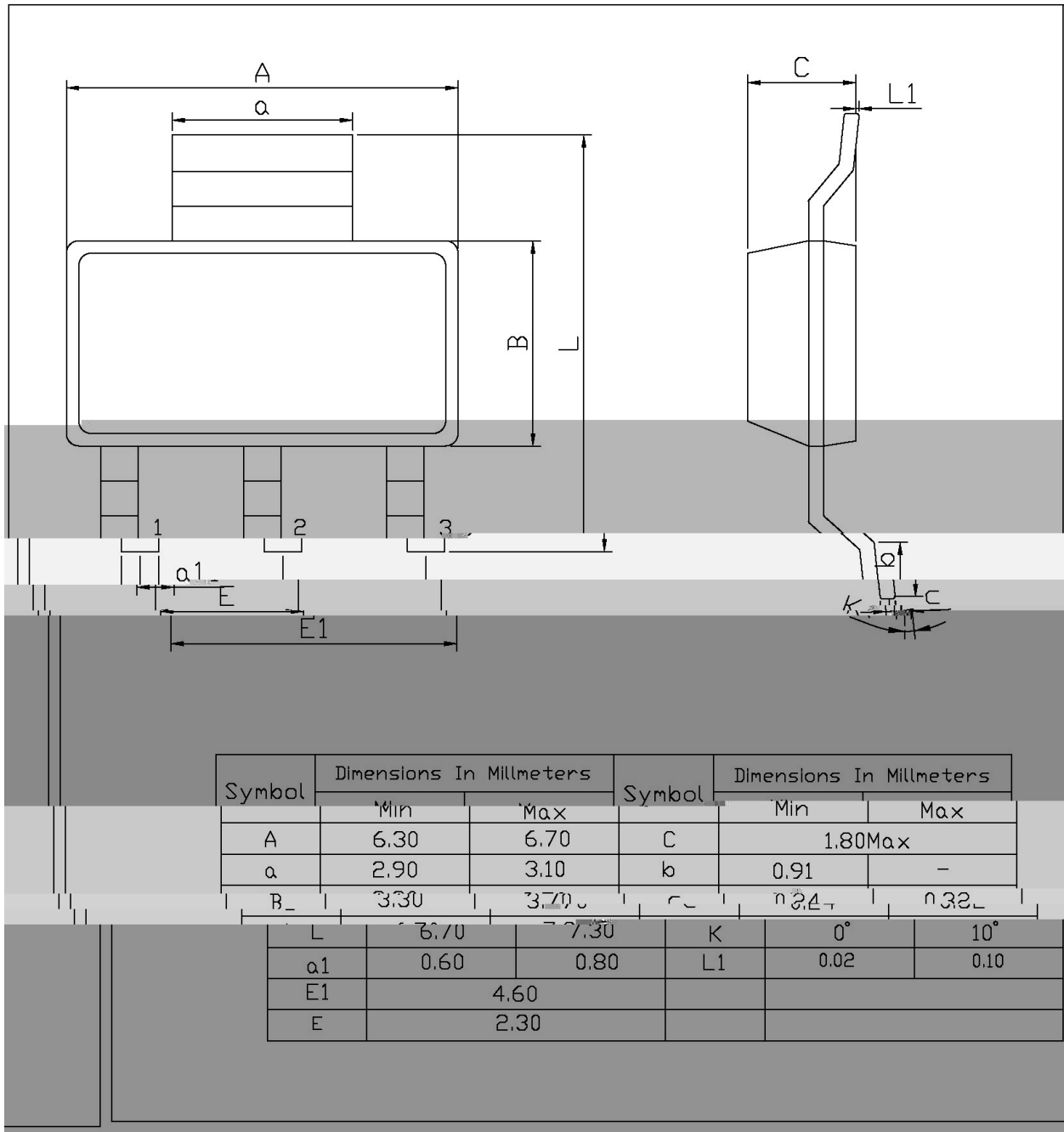




/ Package Dimensions

SOT-223

单位: mm



/ Marking Instructions



BR

9414

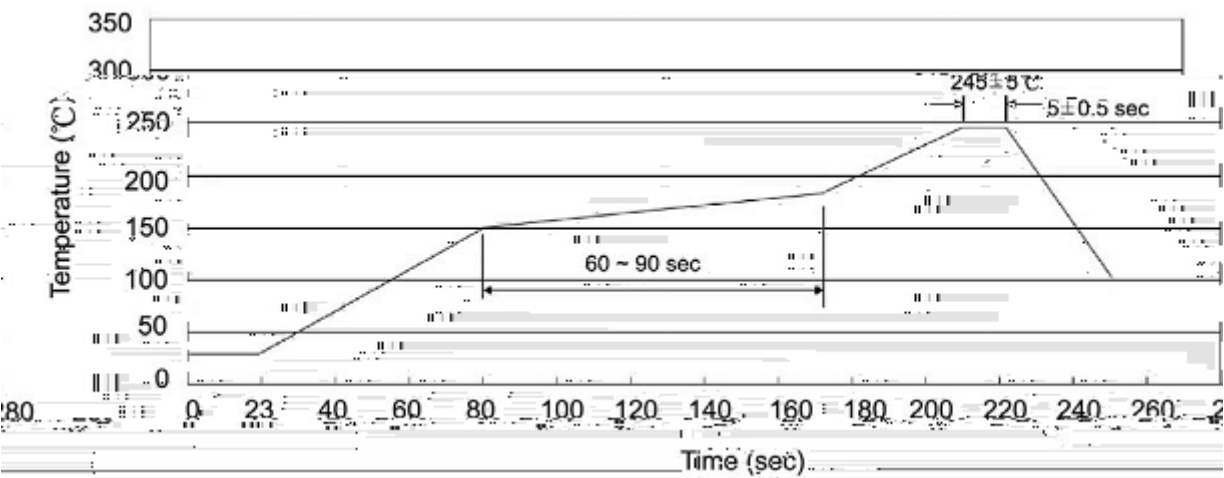
Note:

BR: Company Code.

9414: Product Type.

****: Lot No. Code, code change with Lot No.

() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- | | | | | | |
|---|-------|-----|-----------|--------|---|
| 1 | 25 | 150 | 60 | 90sec; | 1.Preheating:25~150 , Time:60~90sec. |
| 2 | 245±5 | | 5±0.5sec; | | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 | | 2 | 10 | /sec. | 3. Cooling Speed: 2~10 /sec. |

/ Resistance to Soldering Heat Test Conditions

260±5 10±1 sec. Temp:260±5℃ Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-223	2,500	2	5000	5	25,000	13 ×12	340×340×50	385×257×392

/ Notices