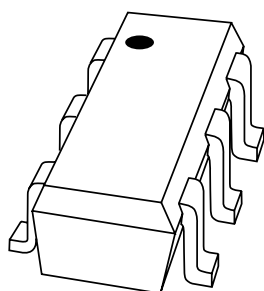


DATA SHEET



PBSS2515YPN

15 V low $V_{CE(sat)}$ NPN/PNP
transistor

Product specification
Supersedes data of 2002 May 08

2005 Jan 11

15 V low $V_{CE(sat)}$ NPN/PNP transistor

PBSS2515YPN

FEATURES

- Low collector-emitter saturation voltage
- High current capability
- Replaces two SC-70 packaged low V_{CEsat} transistors on same PCB area
- Reduces required PCB area
- Reduced pick and place costs.

APPLICATION

- General purpose switching and muting
- Low frequency driver circuits
- LCD backlighting
- Supply line switching circuits
- Battery driven equipment (mobile phones, video cameras and hand-held devices).

DESCRIPTION

NPN/PNP low V_{CEsat} transistor pair in a SC-88 plastic package.

MARKING

TYPE NUMBER	MARKING CODE
PBSS2515YPN	N8*

Note

1. * = -: made in Hong Kong
* = t: made in Malaysia
* = W: made in China.

ORDERING INFORMATION

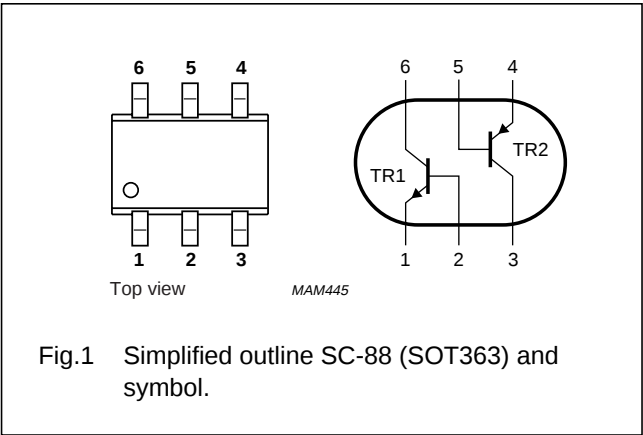
TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
PBSS2515YPN	SC-88	plastic surface mounted package; 6 leads	SOT363

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V_{CEO}	collector-emitter voltage	15	V
I_{CM}	peak collector current	1	A
R_{CEsat}	equivalent on-resistance	<500	m Ω

PINNING

PIN	DESCRIPTION	
1, 4	emitter	TR1; TR2
2, 5	base	TR1; TR2
6, 3	collector	TR1; TR2



15 V low $V_{CE(sat)}$ NPN/PNP transistor

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LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per transistor; for the PNP transistor with negative polarity					
V_{CBO}	collector-base voltage	open emitter	–	15	V
V_{CEO}	collector-emitter voltage	open base	–	15	V
V_{EBO}	emitter-base voltage	open collector	–	6	V
I_C	collector current (DC)		–	500	mA
I_{CM}	peak collector current		–	1	A
I_{BM}	peak base current		–	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$	–	200	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C
Per device					
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	300	mW

Note

1. Transistor mounted on an FR4 printed-circuit board.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-a)}$	thermal resistance from junction to ambient	note 1	416	K/W

Note

1. Transistor mounted on an FR4 printed-circuit board.

15 V low $V_{CE(sat)}$ NPN/PNP transistor

PBSS2515YPN

CHARACTERISTICS

$T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

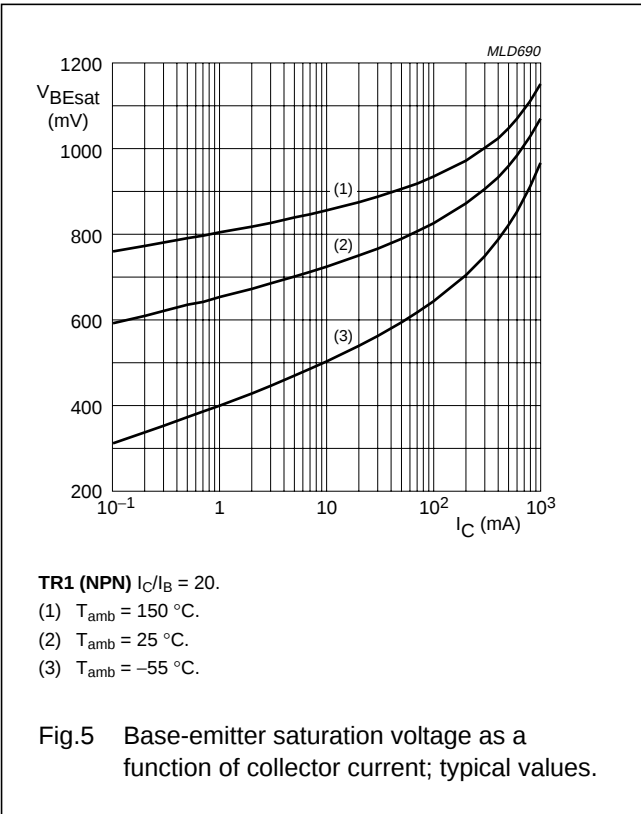
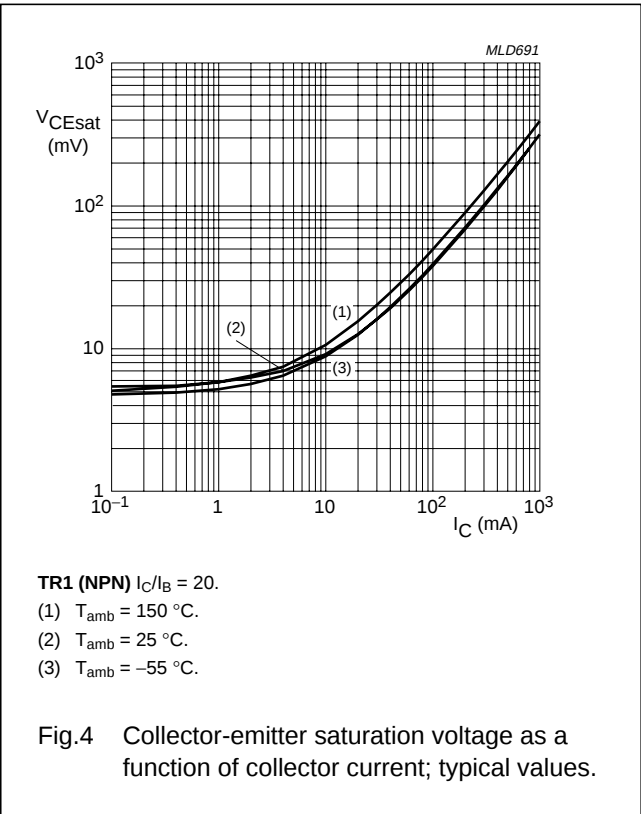
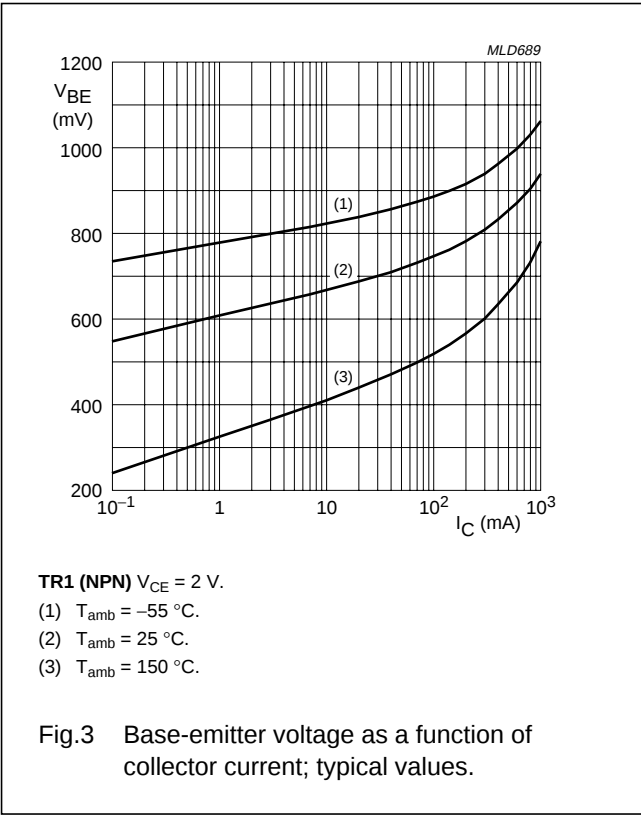
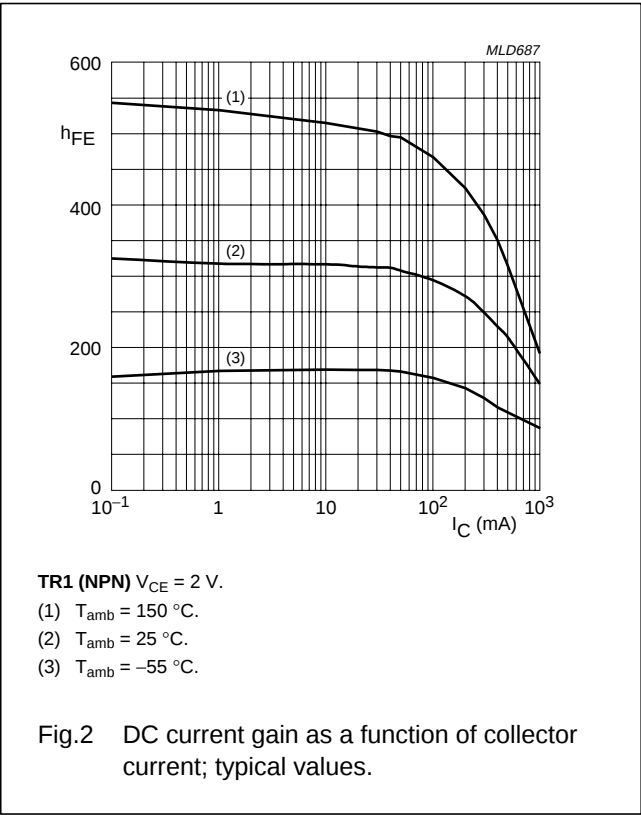
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per transistor; for the PNP transistor with negative polarity						
I_{CBO}	collector-base cut-off current	$V_{CB} = 15\text{ V}; I_E = 0\text{ A}$	–	–	100	nA
		$V_{CB} = 15\text{ V}; I_E = 0\text{ A}; T_j = 150\text{ }^{\circ}\text{C}$	–	–	50	μA
I_{EBO}	emitter-base cut-off current	$V_{EB} = 5\text{ V}; I_C = 0\text{ A}$	–	–	100	nA
h_{FE}	DC current gain	$V_{CE} = 2\text{ V}; I_C = 10\text{ mA}$	200	–	–	
		$V_{CE} = 2\text{ V}; I_C = 100\text{ mA}; \text{note 1}$	150	–	–	
		$V_{CE} = 2\text{ V}; I_C = 500\text{ mA}; \text{note 1}$	90	–	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$	–	–	25	mV
		$I_C = 200\text{ mA}; I_B = 10\text{ mA}$	–	–	150	mV
		$I_C = 500\text{ mA}; I_B = 50\text{ mA}; \text{note 1}$	–	–	250	mV
R_{CEsat}	equivalent on-resistance	$I_C = 500\text{ mA}; I_B = 50\text{ mA}; \text{note 1}$	–	300	<500	$\text{m}\Omega$
V_{BEsat}	base-emitter saturation voltage	$I_C = 500\text{ mA}; I_B = 50\text{ mA}; \text{note 1}$	–	–	1.1	V
V_{BEon}	base-emitter turn-on voltage	$V_{CE} = 2\text{ V}; I_C = 100\text{ mA}; \text{note 1}$	–	–	0.9	V
NPN transistor						
f_T	transition frequency	$I_C = 100\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	250	420	–	MHz
C_c	collector capacitance	$V_{CB} = 10\text{ V}; I_E = I_e = 0\text{ A}; f = 1\text{ MHz}$	–	4.4	6	pF
PNP transistor						
f_T	transition frequency	$I_C = -100\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$	100	280	–	MHz
C_c	collector capacitance	$V_{CB} = -10\text{ V}; I_E = I_e = 0\text{ A}; f = 1\text{ MHz}$	–	–	10	pF

Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$.

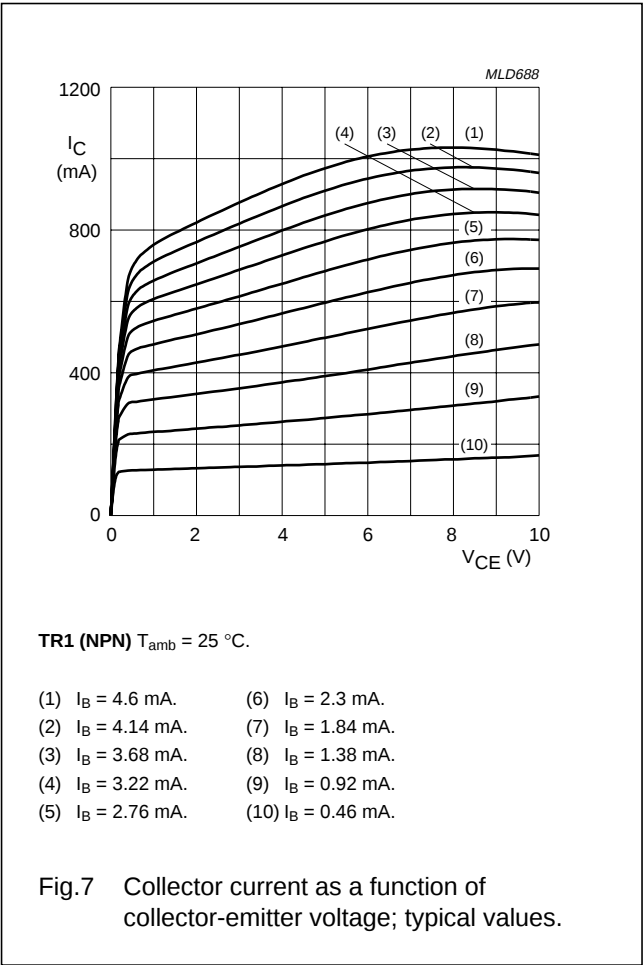
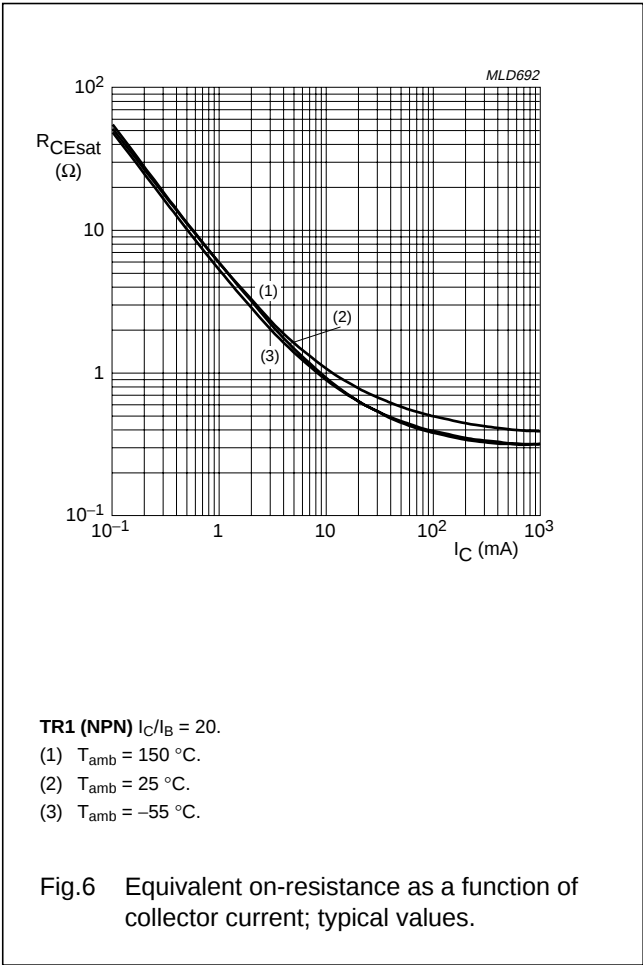
15 V low $V_{CE(sat)}$ NPN/PNP transistor

PBSS2515YPN



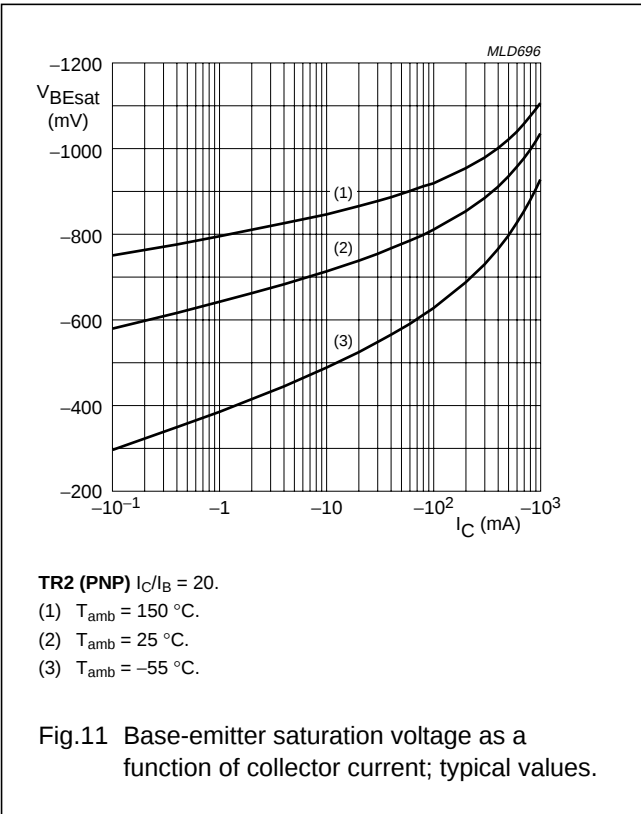
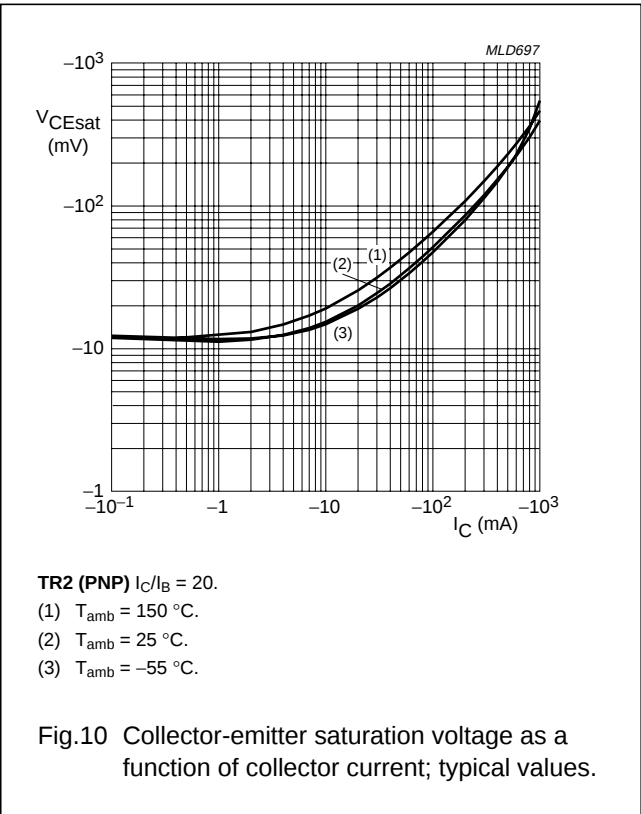
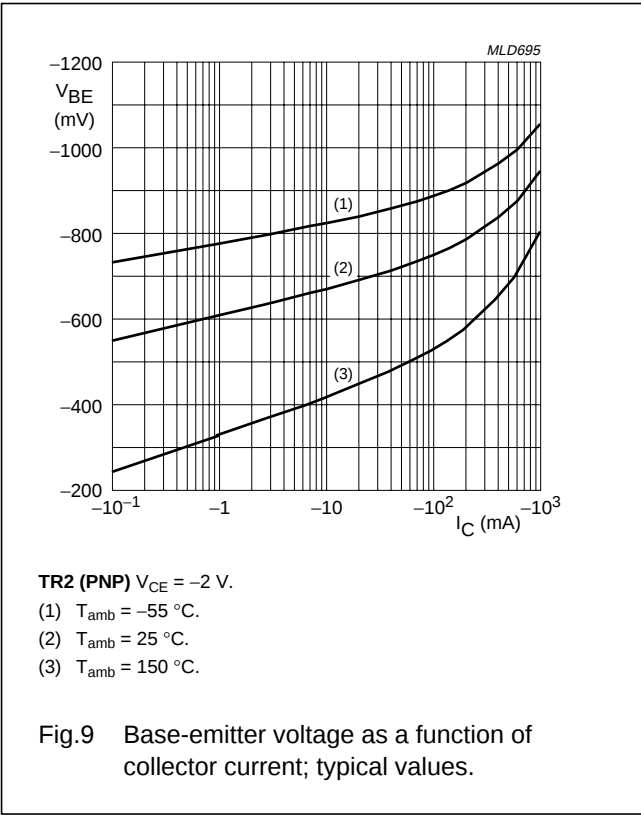
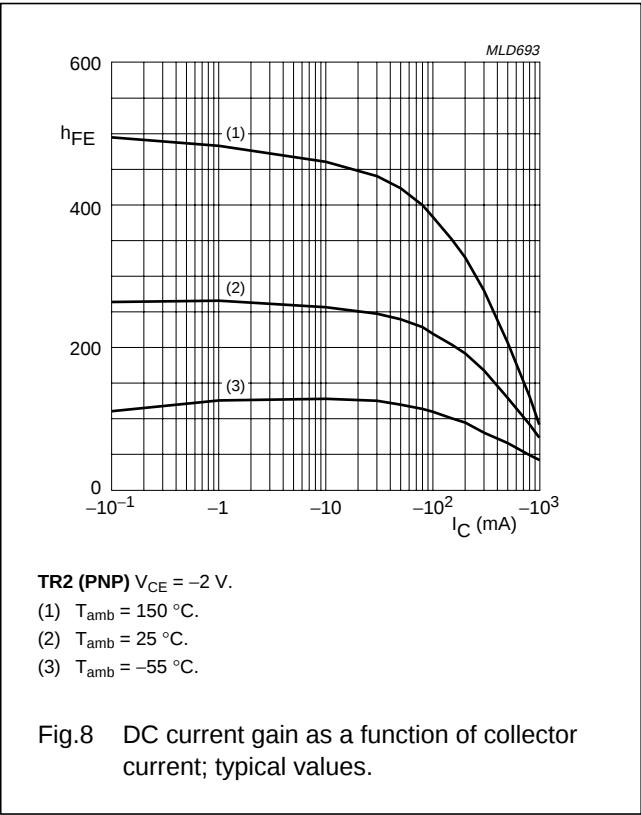
15 V low $V_{CE(sat)}$ NPN/PNP transistor

PBSS2515YPN



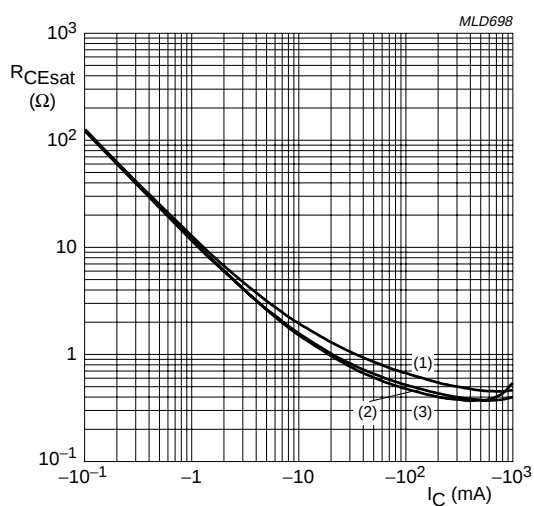
15 V low $V_{CE(sat)}$ NPN/PNP transistor

PBSS2515YPN



15 V low $V_{CE(sat)}$ NPN/PNP transistor

PBSS2515YPN



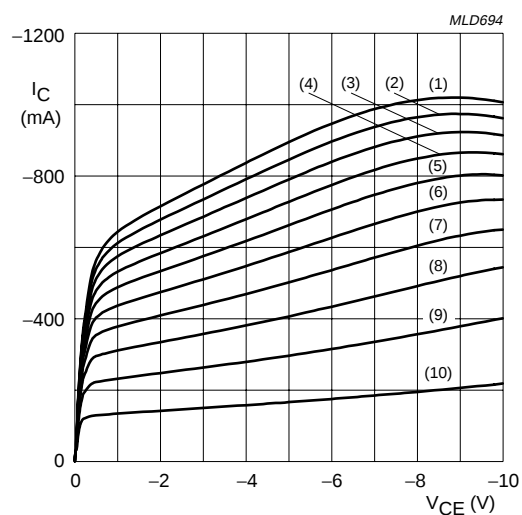
TR2 (PNP) $I_C/I_B = 20$.

(1) $T_{amb} = 150\text{ }^{\circ}\text{C}$.

(2) $T_{amb} = 25\text{ }^{\circ}\text{C}$.

(3) $T_{amb} = -55\text{ }^{\circ}\text{C}$.

Fig.12 Equivalent on-resistance as a function of collector current; typical values.



TR2 (PNP) $T_{amb} = 25\text{ }^{\circ}\text{C}$.

(1) $I_B = -7\text{ mA}$. (6) $I_B = -3.5\text{ mA}$.

(2) $I_B = -6.3\text{ mA}$. (7) $I_B = -2.8\text{ mA}$.

(3) $I_B = -5.6\text{ mA}$. (8) $I_B = -2.1\text{ mA}$.

(4) $I_B = -4.9\text{ mA}$. (9) $I_B = -1.4\text{ mA}$.

(5) $I_B = -4.2\text{ mA}$. (10) $I_B = -0.7\text{ mA}$.

Fig.13 Collector current as a function of collector-emitter voltage; typical values.

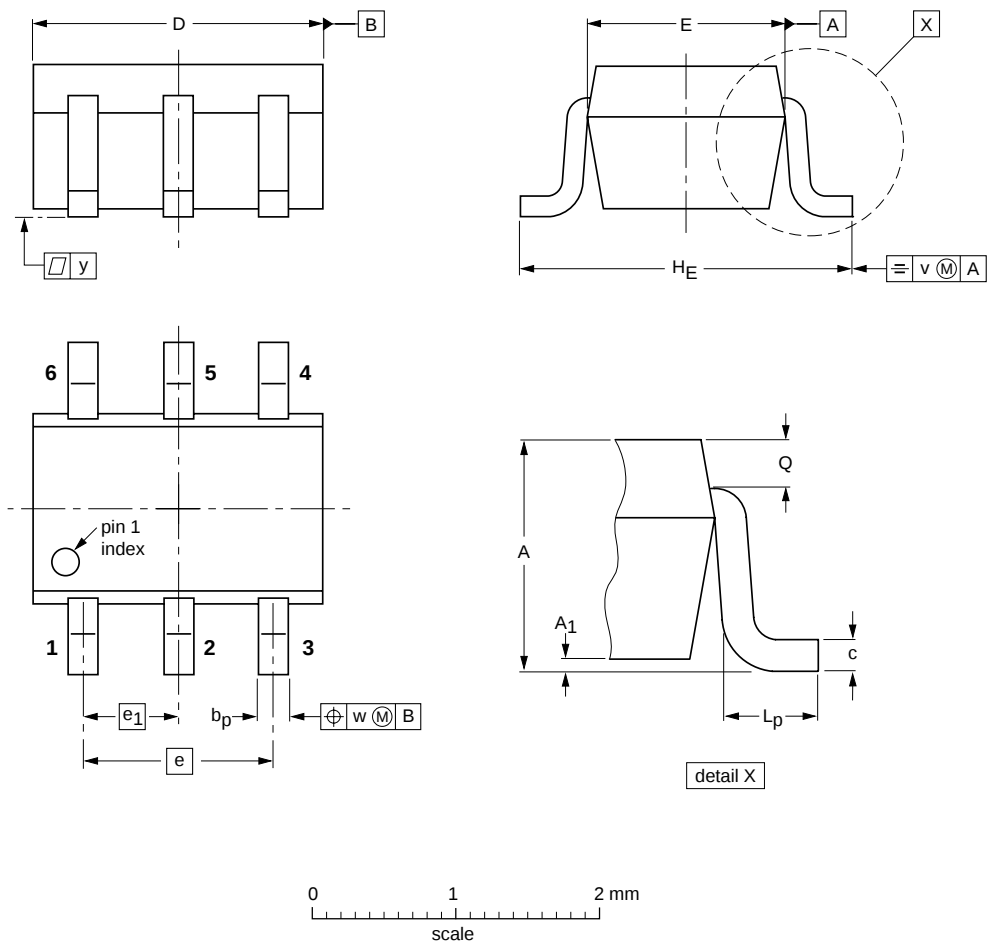
15 V low $V_{CE(sat)}$ NPN/PNP transistor

PBSS2515YPN

PACKAGE OUTLINE

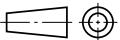
Plastic surface mounted package; 6 leads

SOT363



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT363			SC-88			97-02-28 04-11-08

15 V low $V_{CE(sat)}$ NPN/PNP transistor

PBSS2515YPN

DATA SHEET STATUS

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