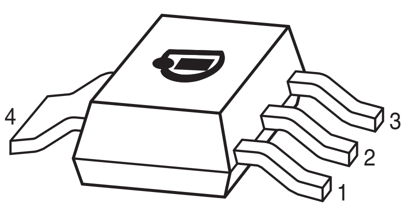
PNP Silicon Darlington Transistor



- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BSP50...BSP52 (NPN)
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101

Type	Marking	Pin Configuration						Package
BSP60	BSP60	1=B	2=C	3=E	4=C	-	-	SOT223
BSP61	BSP61	1=B	2=C	3=E	4=C	-	-	SOT223
BSP62	BSP62	1=B	2=C	3=E	4=C	-	-	SOT223

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}		V
BSP60		45	
BSP61		60	
BSP62		80	
Collector-base voltage	V_{CBO}		
BSP60		60	
BSP61		80	
BSP62		90	
Emitter-base voltage	V_{EBO}	5	
Collector current	I_C	1	A
Peak collector current, $t_p \leq 10$ ms	I_{CM}	2	
Base current	I_B	100	mA
Total power dissipation- $T_S \leq 124$ °C	P_{tot}	1.5	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point[1)]	R_{thJS}	$\leq$ 17	K/W

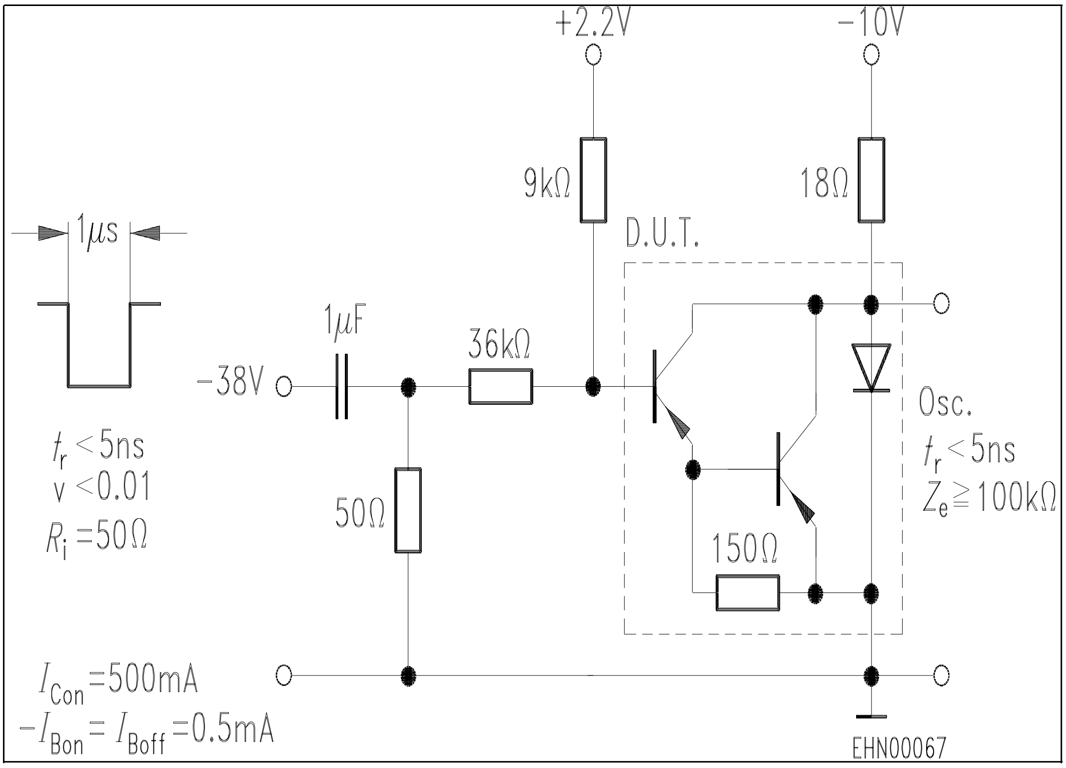
Electrical Characteristics at T_A = 25°C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage	$V_{(BR)CEO}$				V
I_C = 10 mA, I_B = 0 , BSP60		45	-	-	
I_C = 10 mA, I_B = 0 , BSP61		60	-	-	
I_C = 10 mA, I_B = 0 , BCP62		80	-	-	
Collector-base breakdown voltage	$V_{(BR)CBO}$				
I_C = 100 µA, I_E = 0 , BSP60		60	-	-	
I_C = 100 µA, I_E = 0 , BSP61		80	-	-	
I_C = 100 µA, I_E = 0 , BSP62		90	-	-	
Emitter-base breakdown voltage I_E = 100 µA, I_C = 0	$V_{(BR)EBO}$	5	-	-	
Collector-emitter cutoff current V_{CE} = V_{CE0max} , V_{BE} = 0	I_{CES}	-	-	10	µA
Emitter-base cutoff current V_{EB} = 4 V, I_C = 0	I_{EBO}	-	-	10	µA
DC current gain[2)]	h_{FE}				-
I_C = 150 mA, V_{CE} = 10 V		1000	-	-	
I_C = 500 mA, V_{CE} = 10 V		2000	-	-	
Collector-emitter saturation voltage[2)]	V_{CEsat}				V
I_C = 500 mA, I_B = 0.55 mA		-	-	1.3	
I_C = 1 A, I_B = 1 mA		-	-	1.8	
Base emitter saturation voltage[2)]	V_{BEsat}				
I_C = 500 mA, I_B = 0.5 mA		-	-	1.9	
I_C = 1 A, I_B = 1 mA		-	-	2.2	
AC Characteristics					
Transition frequency I_C = 100 mA, V_{CE} = 5 V, f = 100 MHz	f_T	-	200	-	MHz

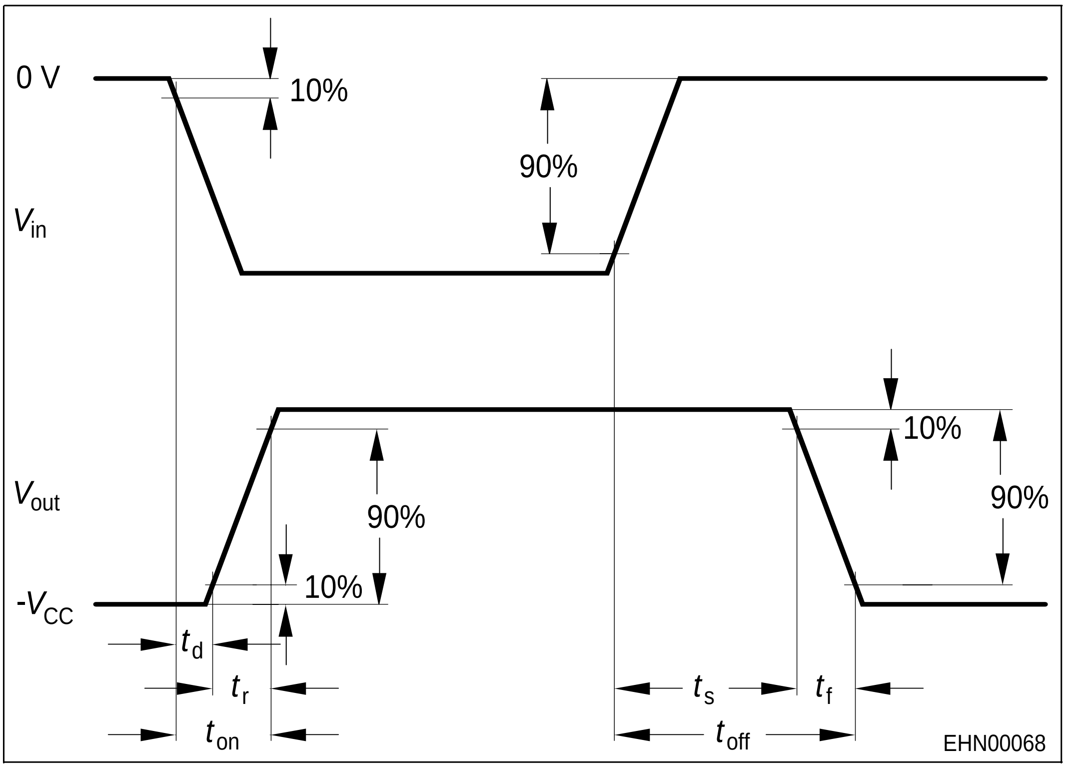
[1]For calculation of R_{thJA} please refer to Application Note AN077 (Thermal Resistance Calculation)

[2]Pulse test: t < 300µs; D < 2%

Switching time test circuit

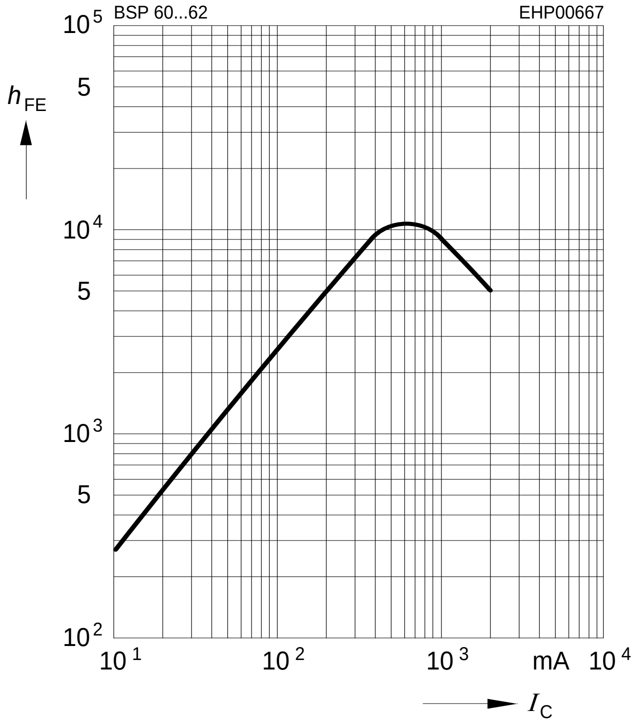


Switching time waveform



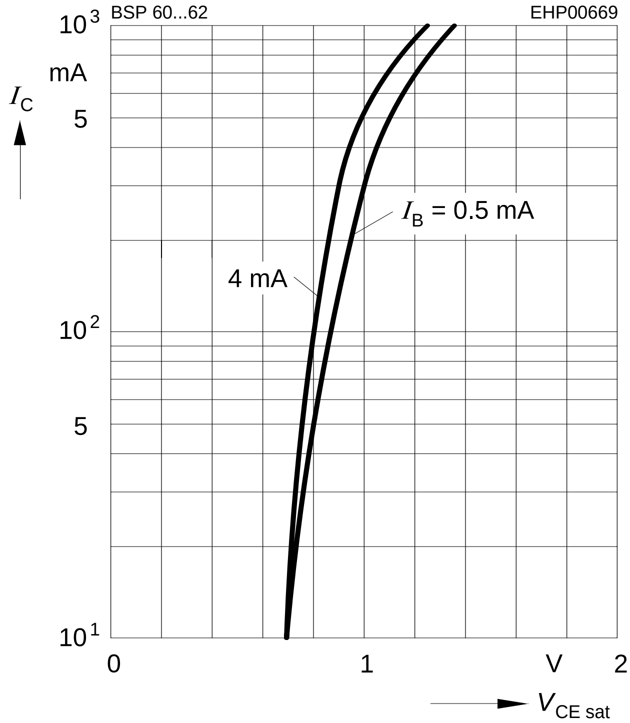
DC current gain $h_{FE} = f(I_C)$

V_{CE} = 10 V



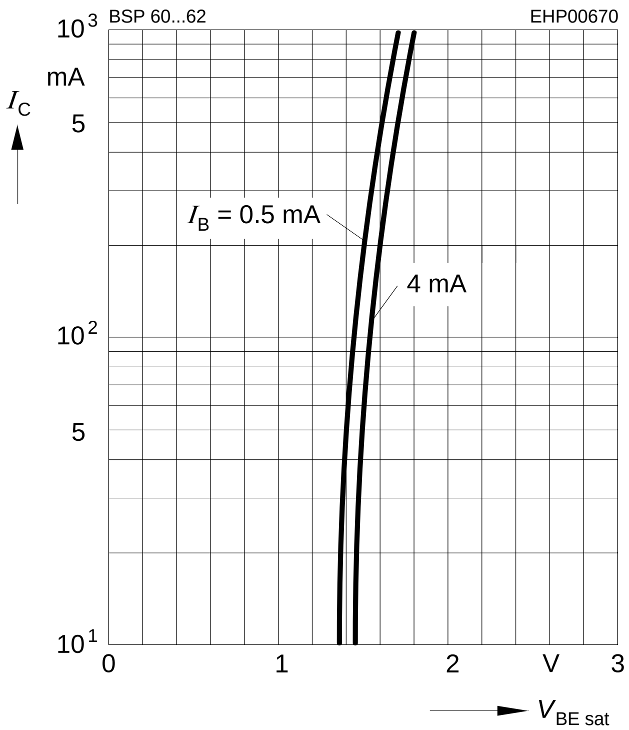
Collector-emitter saturation voltage

$I_C = f(V_{CEsat})$, I_B = Parameter



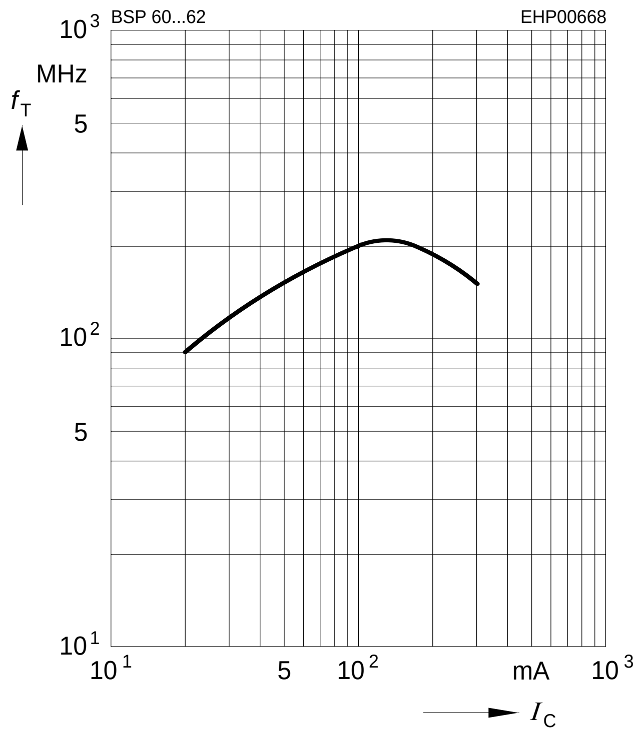
Base-emitter saturation voltage

$I_C = f(V_{BEsat})$, I_B = Parameter

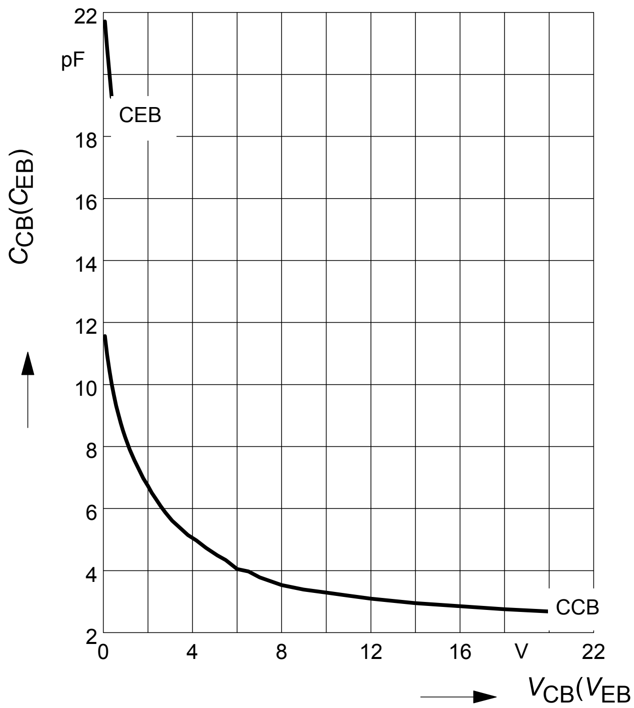


Transition frequency $f_T = f(I_C)$

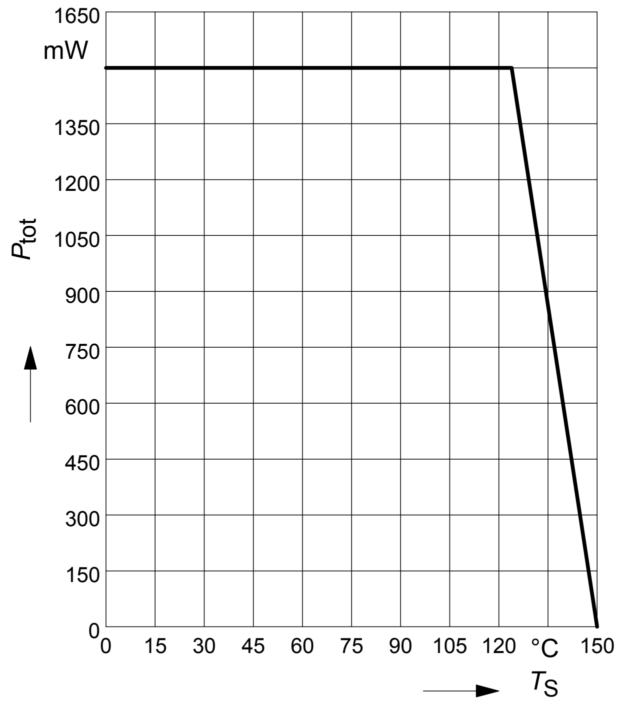
V_{CE} = 10 V, f = 100 MHz



Collector-base capacitance $C_{cb} = f(V_{CB})$
Emitter-base capacitance $C_{eb} = f(V_{EB})$

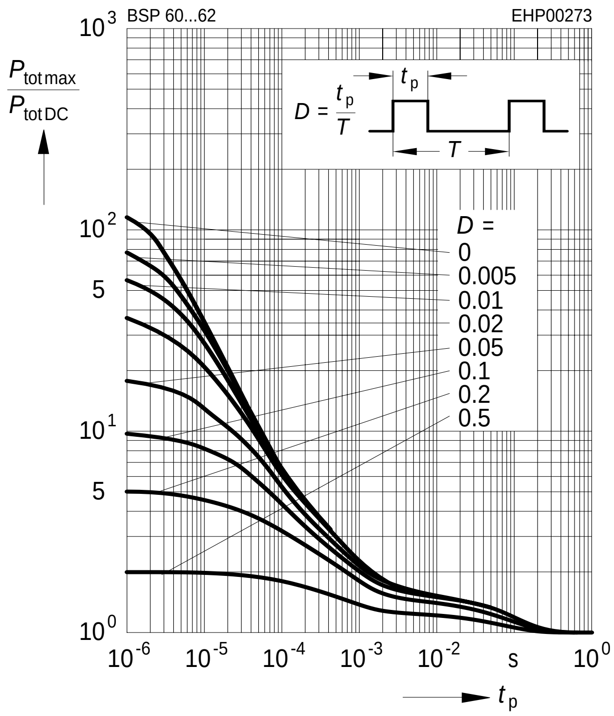


Total power dissipation $P_{tot} = f(T_S)$



Permissible Pulse Load

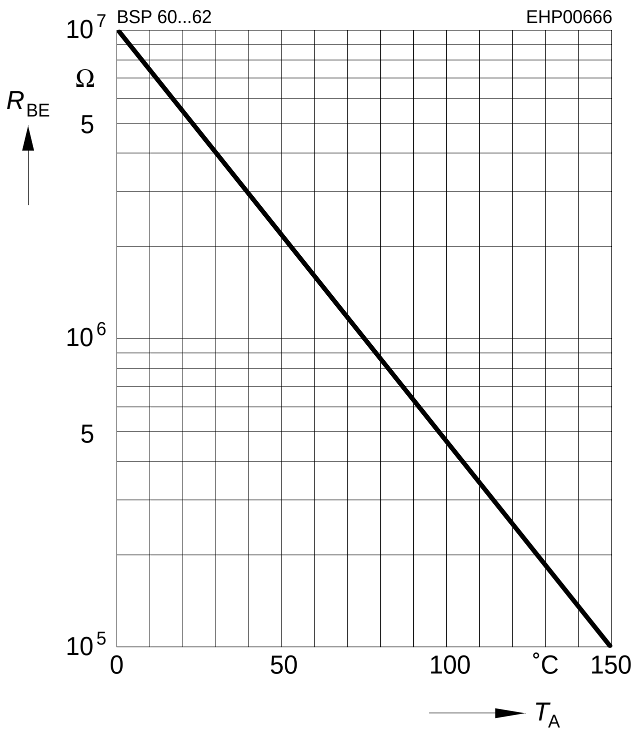
$P_{totmax}/P_{totDC} = f(t_p)$



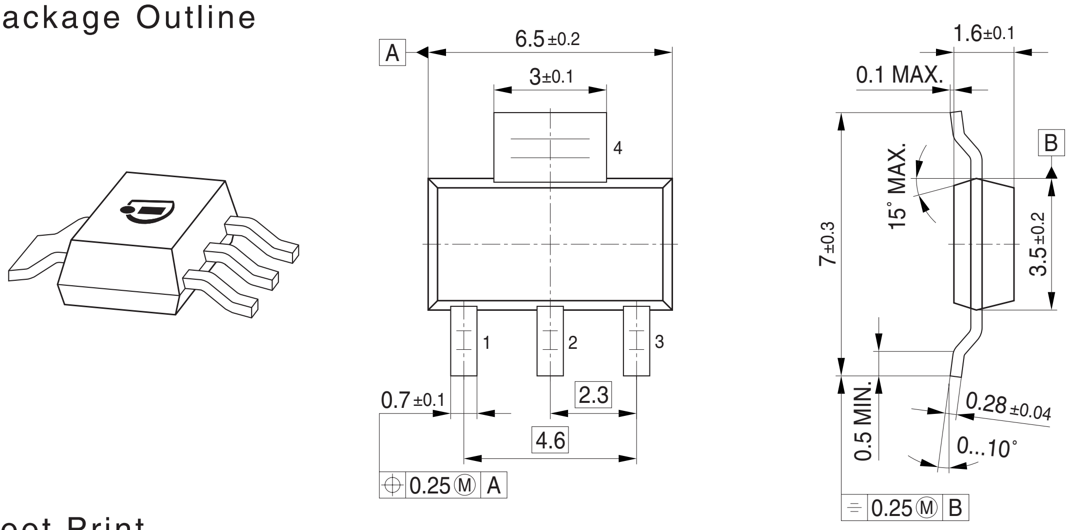
External resistance $R_{BE} = f\ (T_A)$**

$V_{CB} = V_{CEmax}$

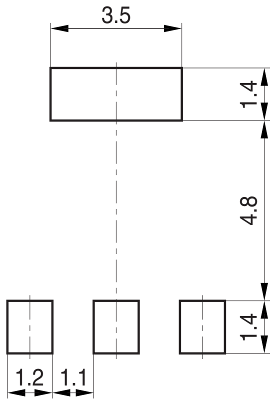
** R_{BEmax} for thermal stability



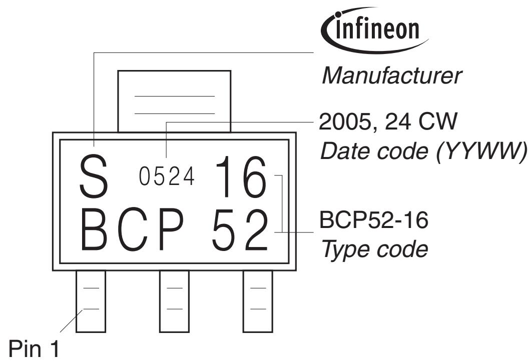
Package Outline



Foot Print

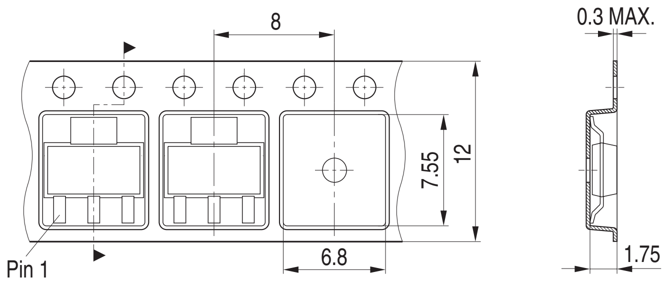


Marking Layout (Example)



Packing

Reel ø180 mm = 1.000 Pieces/Reel
Reel ø330 mm = 4.000 Pieces/Reel



Edition 2009-11-16

Published by
Infineon Technologies AG
81726 Munich, Germany

Legal Disclaimer

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party.

Information

For further information on technology, delivery terms and conditions and prices, please contact the nearest Infineon Technologies Office (<www.infineon.com>).

Warnings

Due to technical requirements, components may contain dangerous substances. For information on the types in question, please contact the nearest Infineon Technologies Office.
Infineon Technologies components may be used in life-support devices or systems only with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.