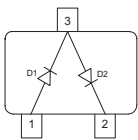


Silicon Switching Diode

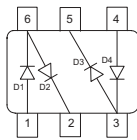
- For high-speed switching applications
- Series pair configuration
- BAV99S / U: For orientation in reel see package information below



BAV99
BAV99T
BAV99W



BAV99S
BAV99U



Type	Package	Configuration	Marking
BAV99	SOT23	series	A7s
BAV99S	SOT363	dual series	A7s
BAV99T	SC75	series	A7
BAV99U	SC74	dual series	A7s
BAV99W	SOT323	series	A7s

Maximum Ratings at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	80	V
Peak reverse voltage	V_{RM}	85	
Forward current	I_F	200	mA
Non-repetitive peak surge forward current	I_{FSM}		A
$t = 1 \mu\text{s}$		4.5	
$t = 1 \text{ms}$		1	
$t = 1 \text{s, single}$		0.5	
$t = 1 \text{s, double}$		0.75	
Total power dissipation	P_{tot}		mW
BAV99, $T_S \leq 28^\circ\text{C}$		330	
BAV99S, $T_S \leq 85^\circ\text{C}$		250	
BAV99T, $T_S \leq 104^\circ\text{C}$		250	
BAV99U, $T_S \leq 113^\circ\text{C}$		250	
BAV99W, $T_S \leq 110^\circ\text{C}$		250	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾	R_{thJS}		K/W
BAV99		≤ 360	
BAV99S		≤ 260	
BAV99T		≤ 185	
BAV99U		≤ 150	
BAV99W		≤ 160	

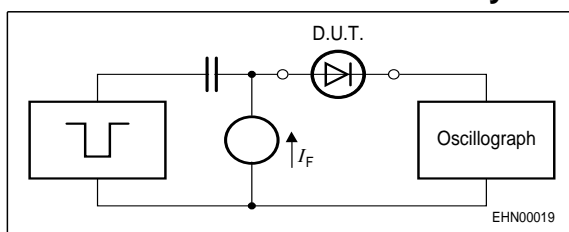
¹⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Breakdown voltage $I_{(BR)} = 100 \mu\text{A}$	$V_{(BR)}$	85	-	-	V
Reverse current $V_R = 70 \text{ V}$ $V_R = 25 \text{ V}, T_A = 150^\circ\text{C}$ $V_R = 70 \text{ V}, T_A = 150^\circ\text{C}$	I_R	-	-	0.15 30 50	μA
Forward voltage $I_F = 1 \text{ mA}$ $I_F = 10 \text{ mA}$ $I_F = 50 \text{ mA}$ $I_F = 100 \text{ mA}$ $I_F = 150 \text{ mA}$	V_F	-	-	715 855 1000 1200 1250	mV

Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Diode capacitance $V_R = 0 \text{ V}, f = 1 \text{ MHz}$	C_T	-	-	1.5	pF
Reverse recovery time $I_F = 10 \text{ mA}, I_R = 10 \text{ mA}$, measured at $I_R = 1 \text{ mA}$, $R_L = 100 \Omega$	t_{rr}	-	-	4	ns

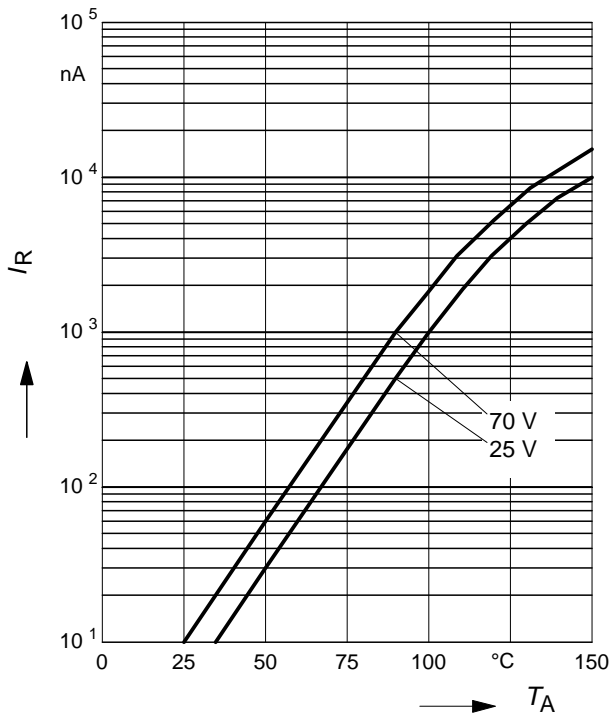
Test circuit for reverse recovery time


Pulse generator: $t_p = 100\text{ns}$, $D = 0.05$,
 $t_r = 0.6\text{ns}$, $R_i = 50\Omega$

Oscilloscope: $R = 50$, $t_r = 0.35\text{ns}$
 $C \leq 1\text{pF}$

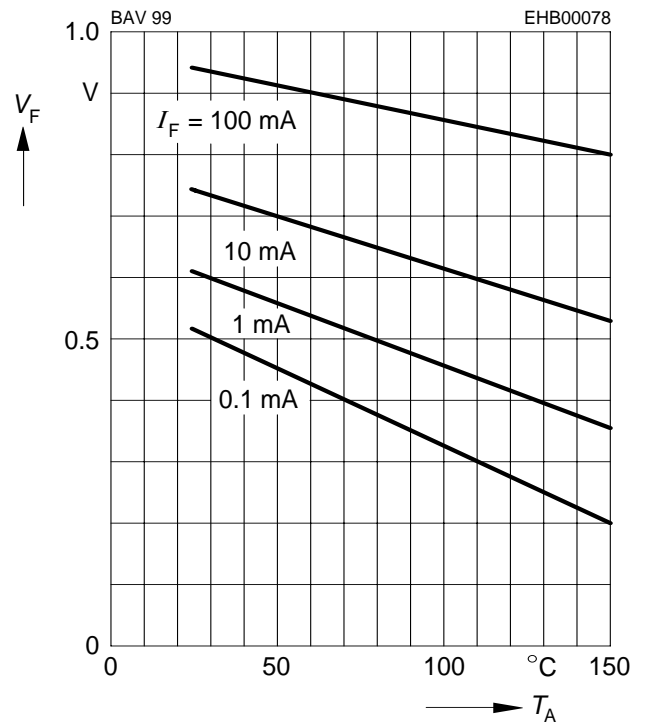
Reverse current $I_R = f(T_A)$

$V_R =$ Parameter



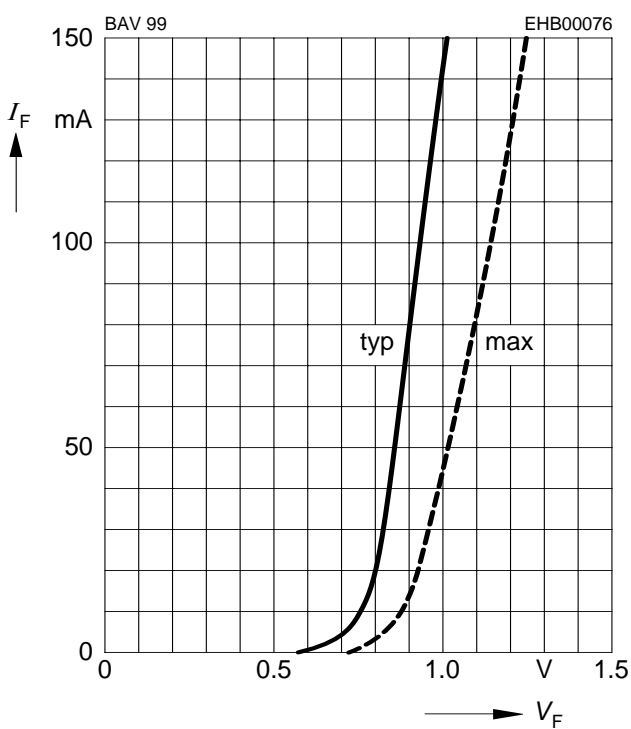
Forward Voltage $V_F = f(T_A)$

$I_F =$ Parameter



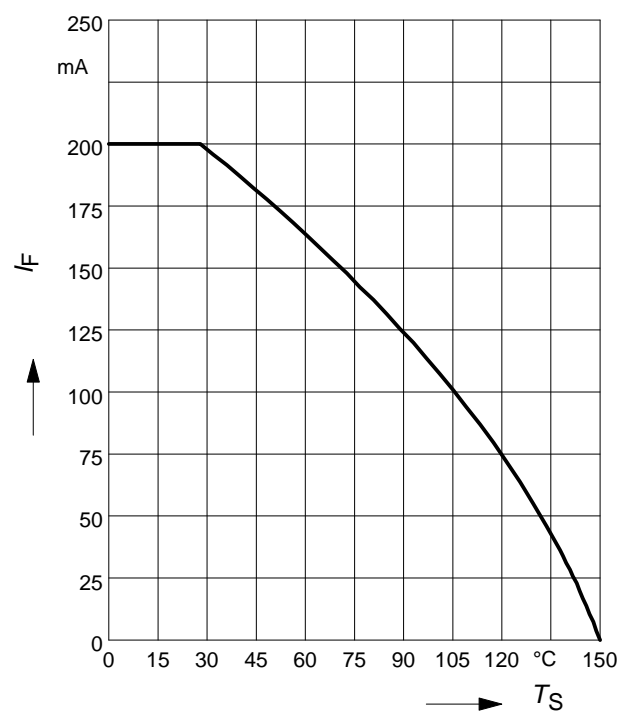
Forward current $I_F = f(V_F)$

$T_A = 25^\circ\text{C}$



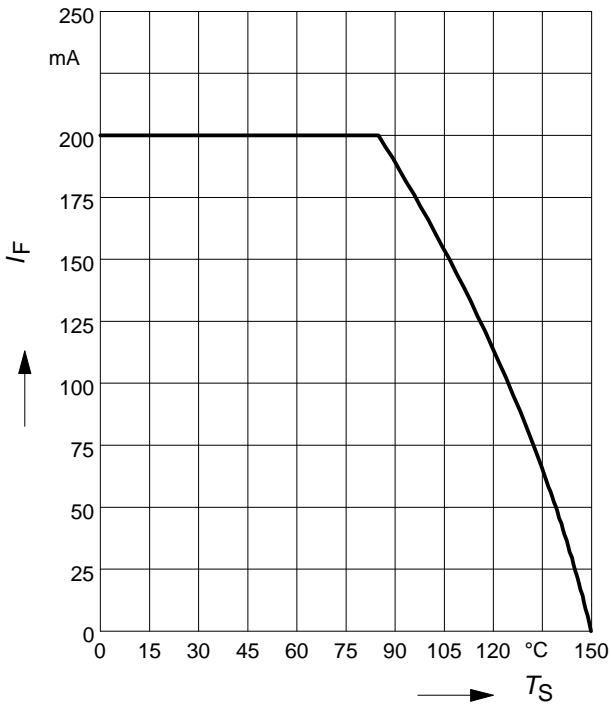
Forward current $I_F = f(T_S)$

BAV99



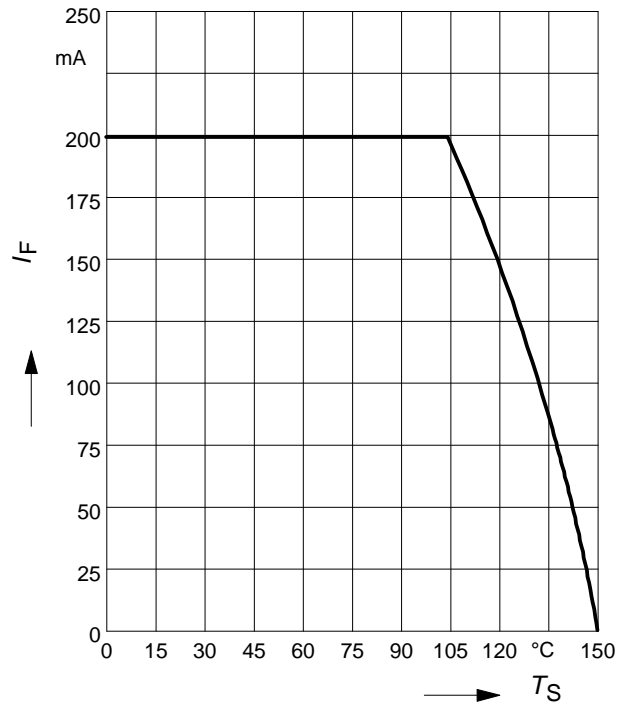
Forward current $I_F = f(T_S)$

BAV99S



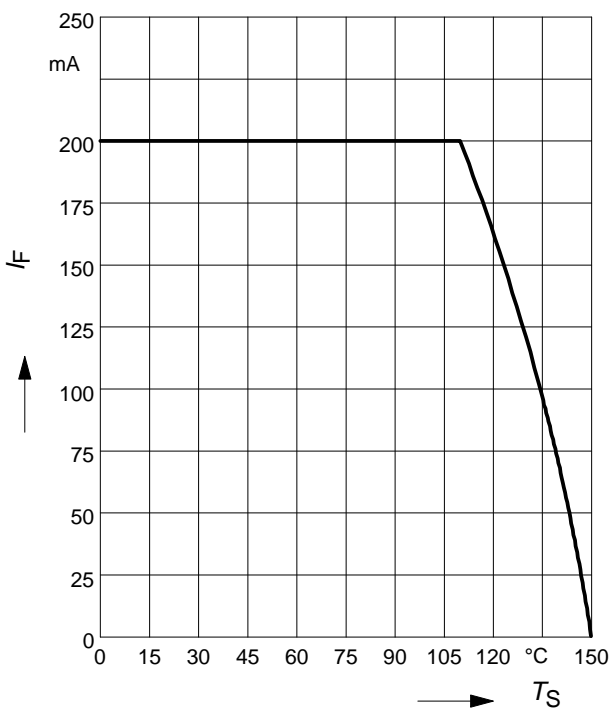
Forward current $I_F = f(T_S)$

BAV99T



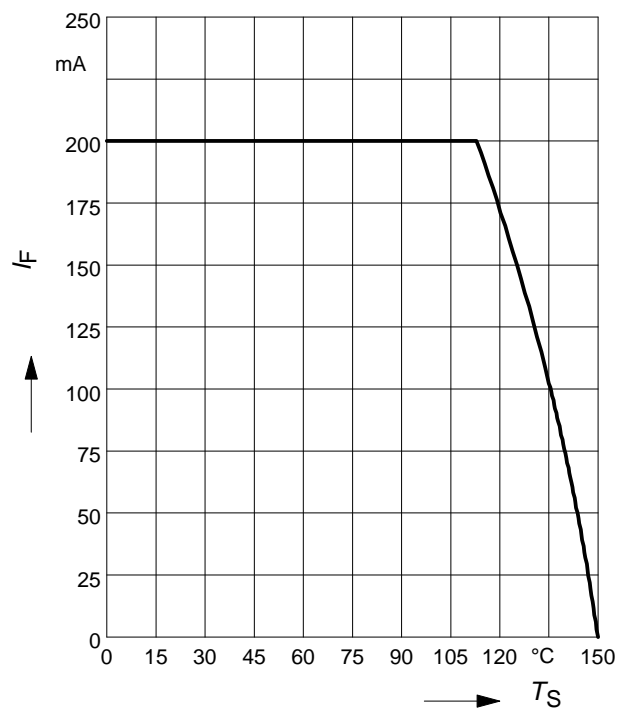
Forward current $I_F = f(T_S)$

BAV99U



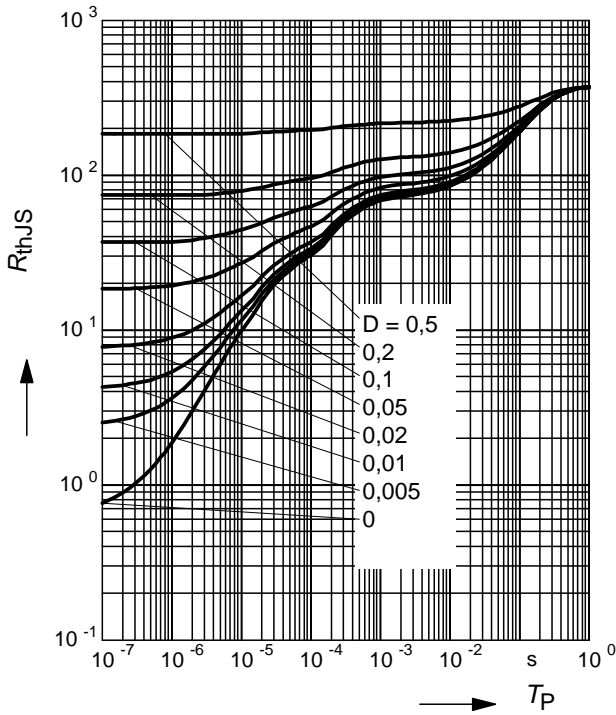
Forward current $I_F = f(T_S)$

BAV99W



Permissible Puls Load $R_{thJS} = f(t_p)$

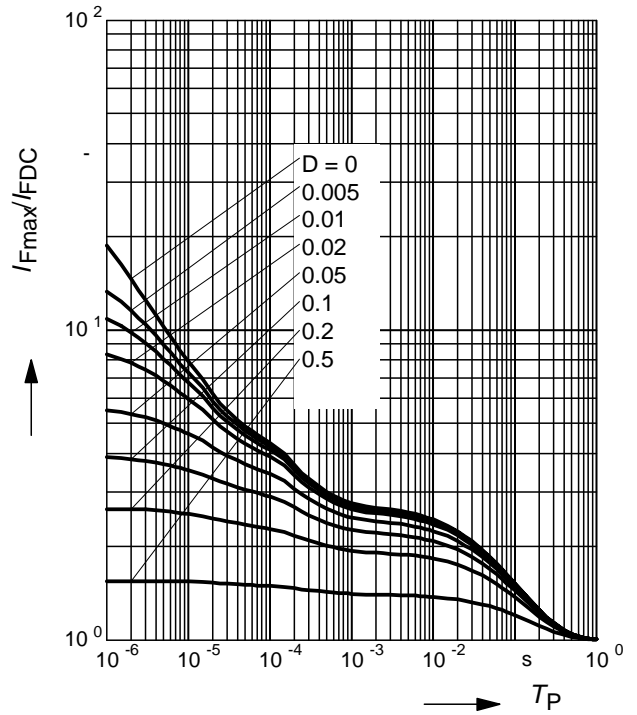
BAV99



Permissible Pulse Load

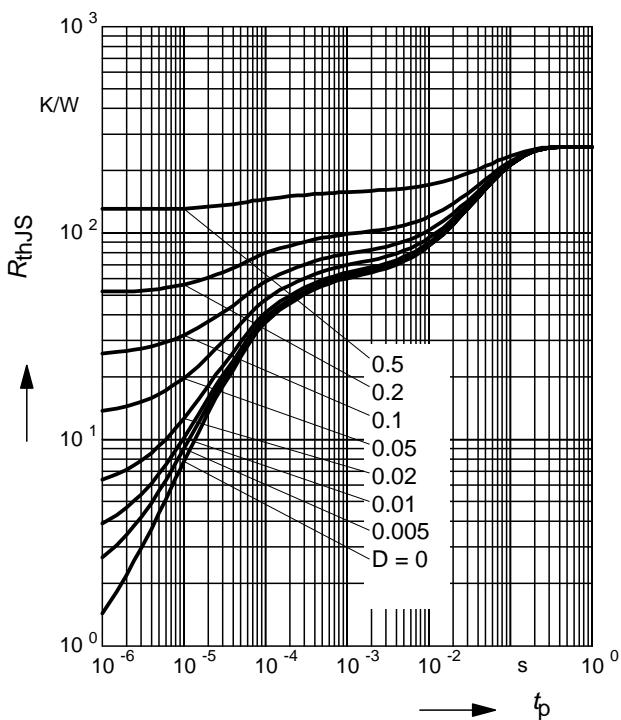
$I_{Fmax} / I_{FDC} = f(t_p)$

BAV99



Permissible Puls Load $R_{thJS} = f(t_p)$

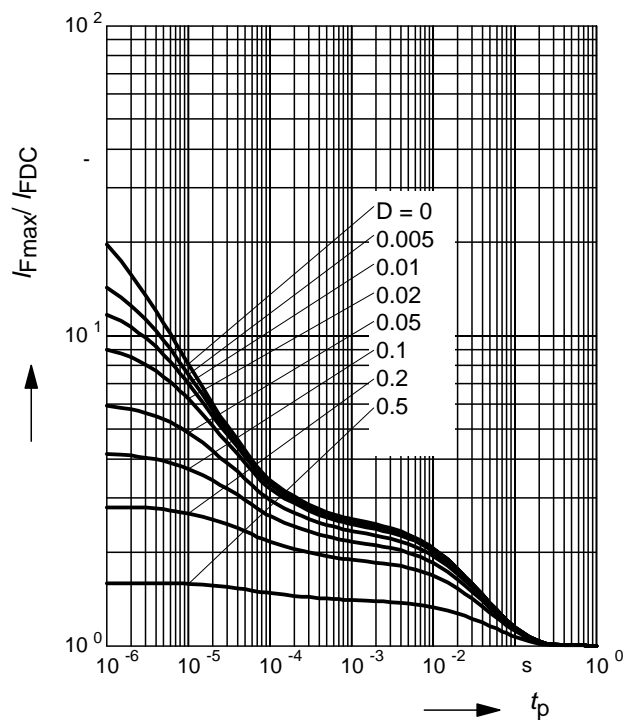
BAV99S



Permissible Pulse Load

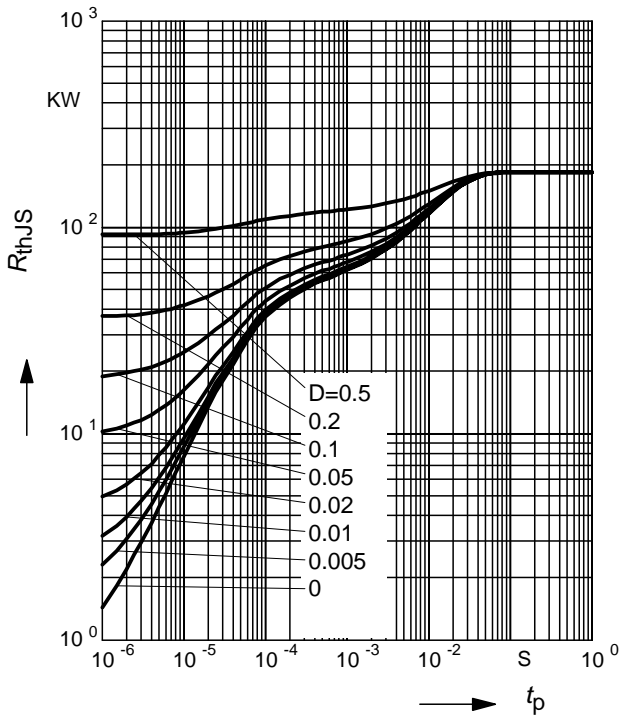
$I_{Fmax} / I_{FDC} = f(t_p)$

BAV99S



Permissible Puls Load $R_{thJS} = f(t_p)$

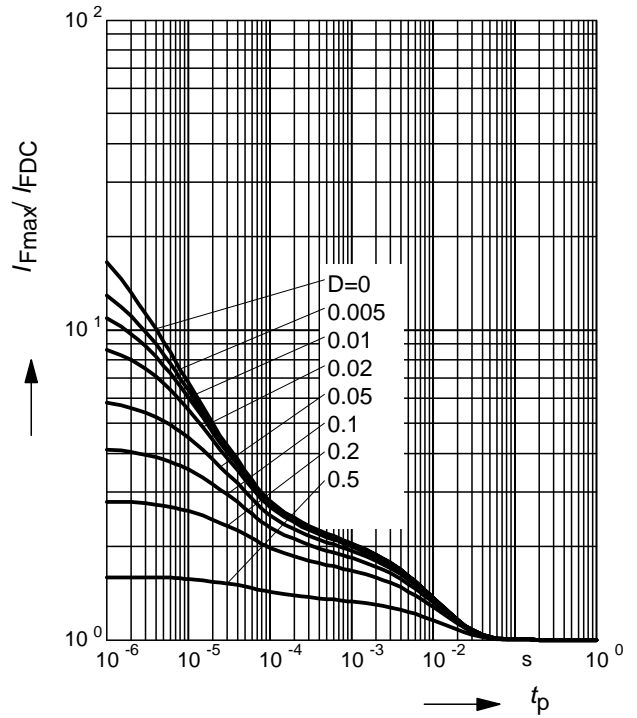
BAV99T



Permissible Pulse Load

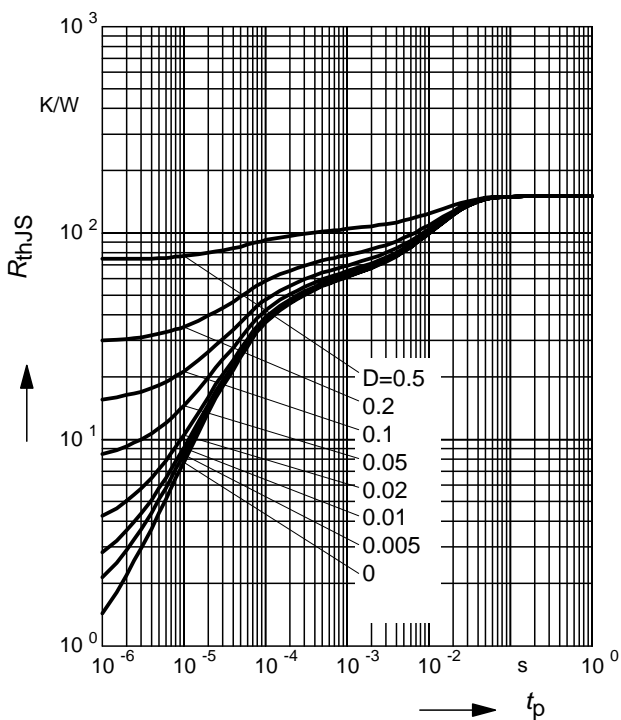
$I_{Fmax} / I_{FDC} = f(t_p)$

BAV99T



Permissible Puls Load $R_{thJS} = f(t_p)$

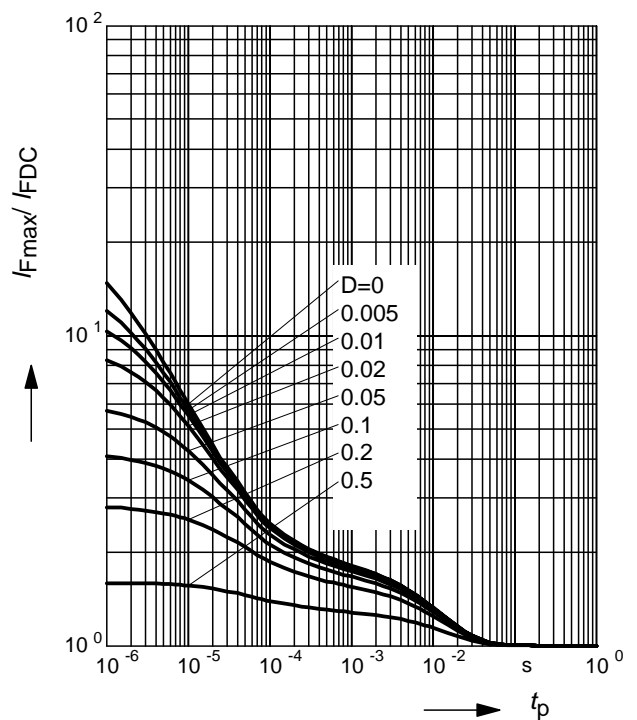
BAV99U



Permissible Pulse Load

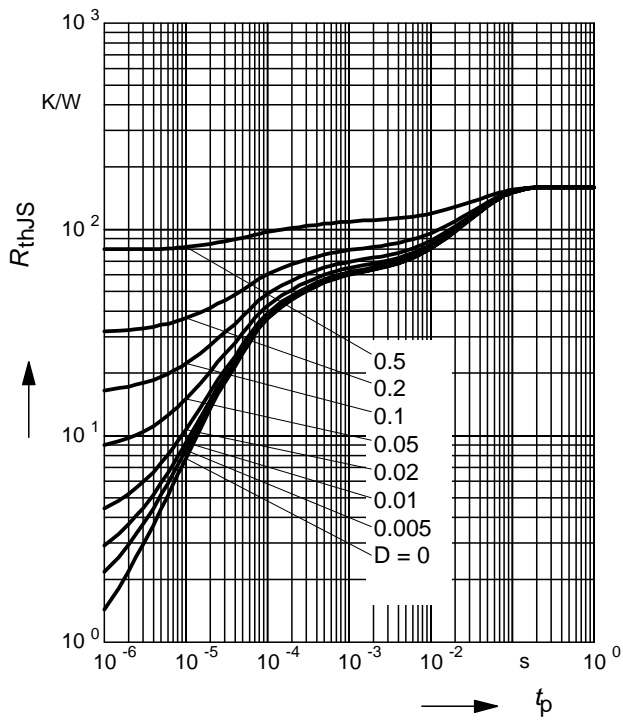
$I_{Fmax} / I_{FDC} = f(t_p)$

BAV99U



Permissible Puls Load $R_{thJS} = f(t_p)$

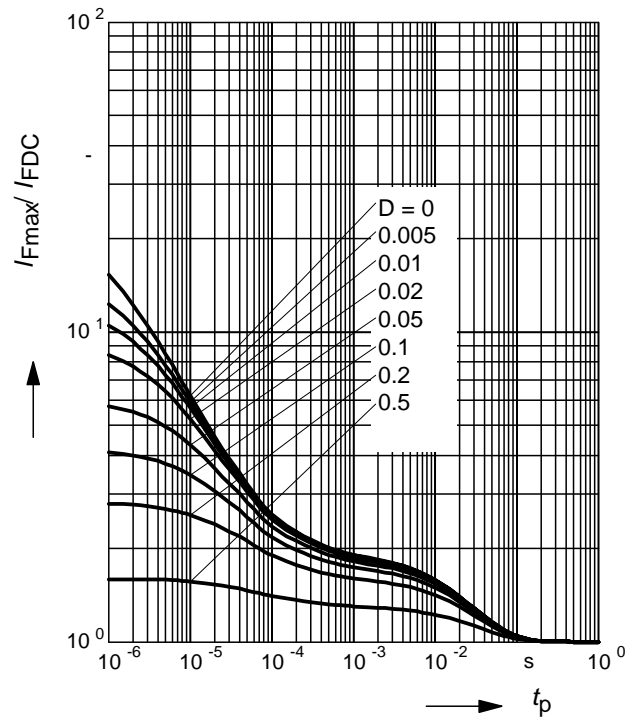
BAV99W



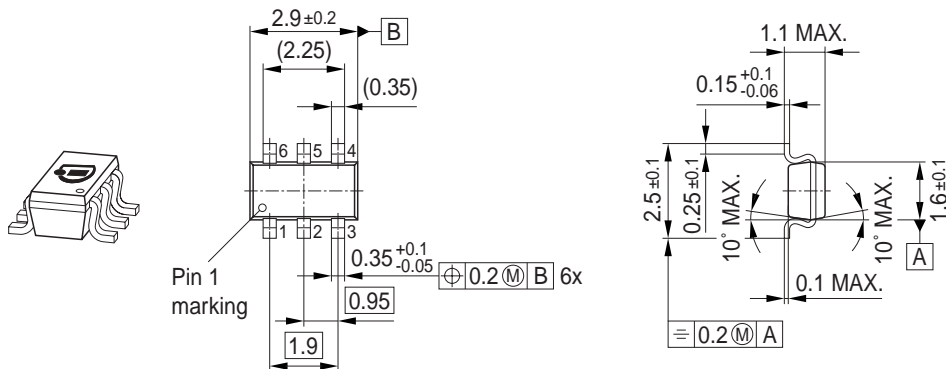
Permissible Pulse Load

$I_{Fmax} / I_{FDC} = f(t_p)$

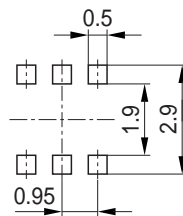
BAV99W



Package Outline

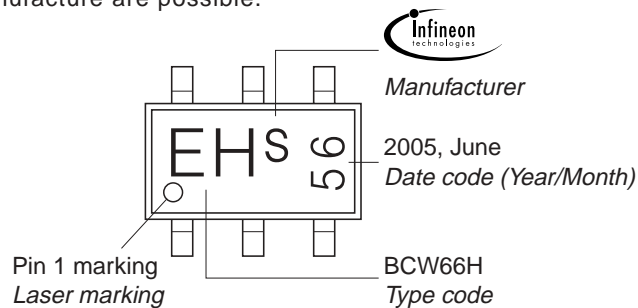


Foot Print



Marking Layout (Example)

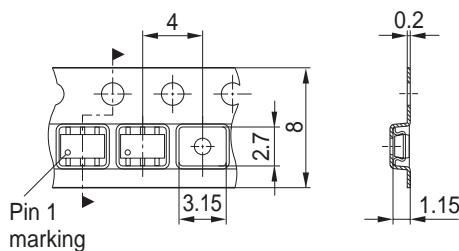
Small variations in positioning of Date code, Type code and Manufacture are possible.



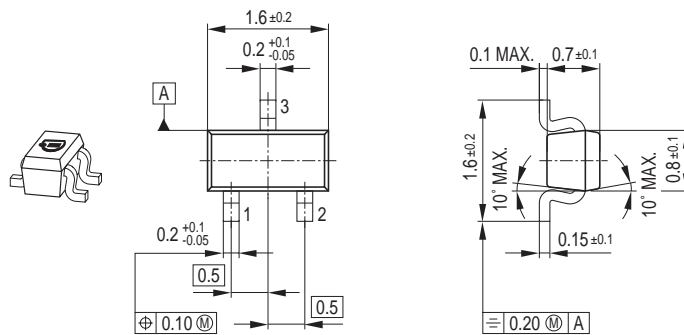
Standard Packing

Reel \varnothing 180 mm = 3.000 Pieces/Reel
 Reel \varnothing 330 mm = 10.000 Pieces/Reel

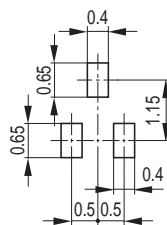
For symmetric types no defined Pin 1 orientation in reel.



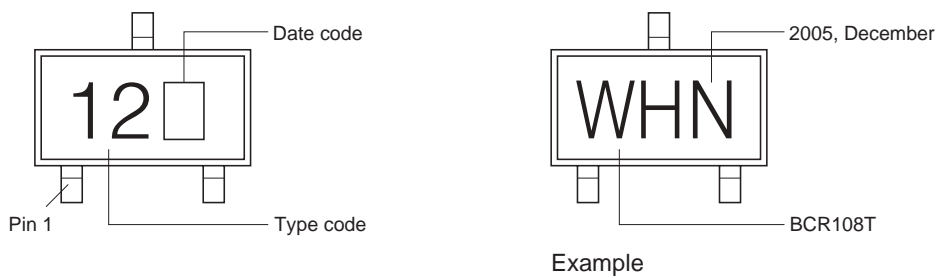
Package Outline



Foot Print

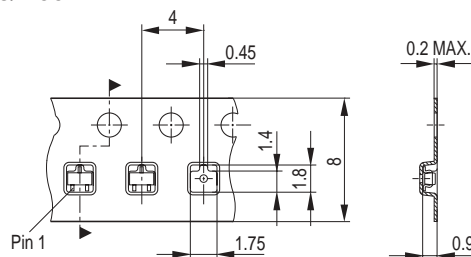


Marking Layout



Standard Packing

Reel \varnothing 180 mm = 3.000 Pieces/Reel
 Reel \varnothing 330 mm = 10.000 Pieces/Reel



Date Code marking for discrete packages with one digit (SCD80, SC79, SC75¹⁾) CES-Code

Month	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
01	a	p	A	P	a	p	A	P	a	p	A	P
02	b	q	B	Q	b	q	B	Q	b	q	B	Q
03	c	r	C	R	c	r	C	R	c	r	C	R
04	d	s	D	S	d	s	D	S	d	s	D	S
05	e	t	E	T	e	t	E	T	e	t	E	T
06	f	u	F	U	f	u	F	U	f	u	F	U
07	g	v	G	V	g	v	G	V	g	v	G	V
08	h	x	H	X	h	x	H	X	h	x	H	X
09	j	y	J	Y	j	y	J	Y	j	y	J	Y
10	k	z	K	Z	k	z	K	Z	k	z	K	Z
11	l	2	L	4	l	2	L	4	l	2	L	4
12	n	3	N	5	n	3	N	5	n	3	N	5

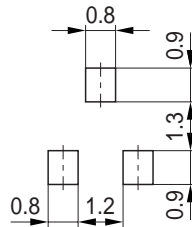
1) New Marking Layout for SC75, implemented at October 2005.

Package Outline

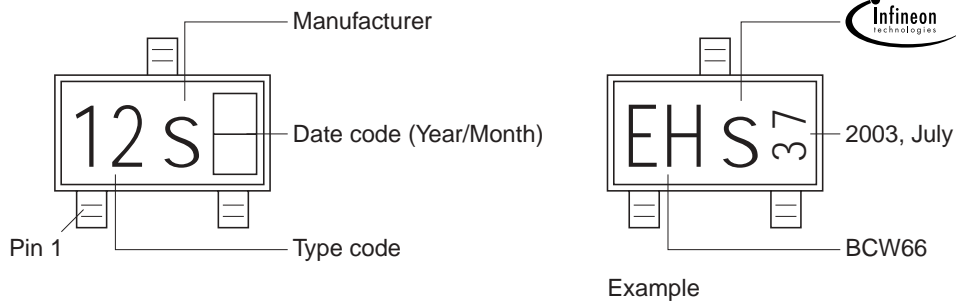


1) Lead width can be 0.6 max. in dambar area

Foot Print

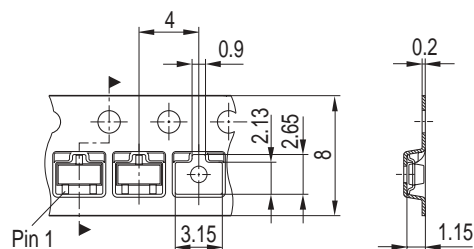


Marking Layout

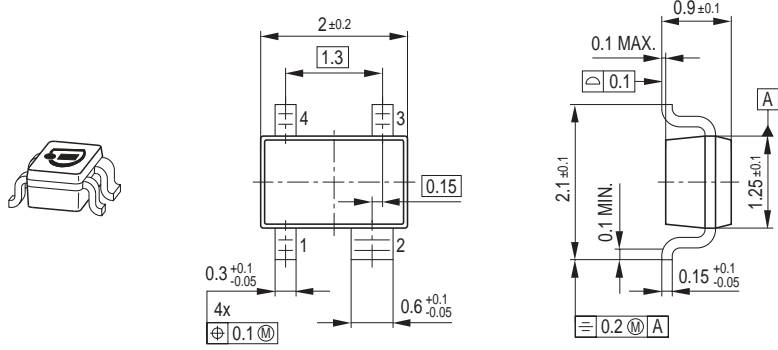


Standard Packing

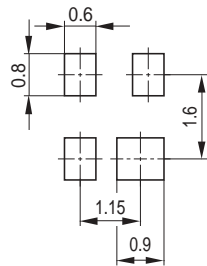
Reel \varnothing 180 mm = 3.000 Pieces/Reel
 Reel \varnothing 330 mm = 10.000 Pieces/Reel



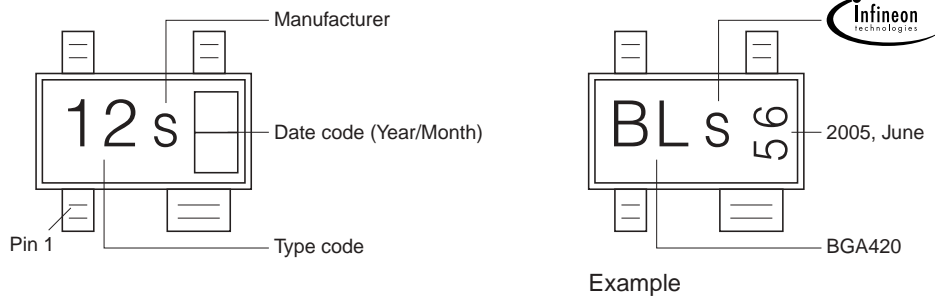
Package Outline



Foot Print

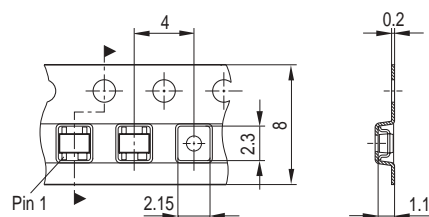


Marking Layout

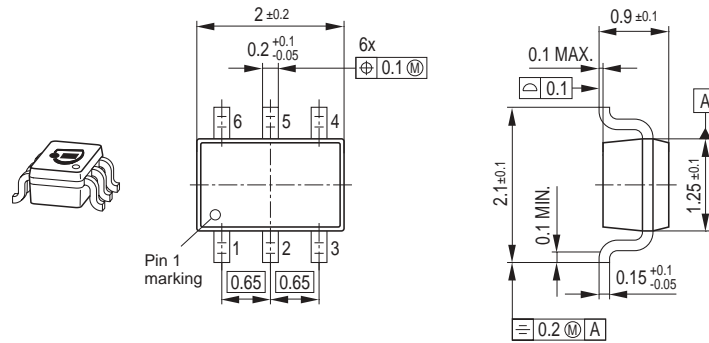


Standard Packing

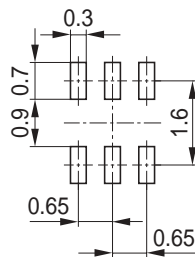
Reel $\varnothing 180$ mm = 3.000 Pieces/Reel
 Reel $\varnothing 330$ mm = 10.000 Pieces/Reel



Package Outline

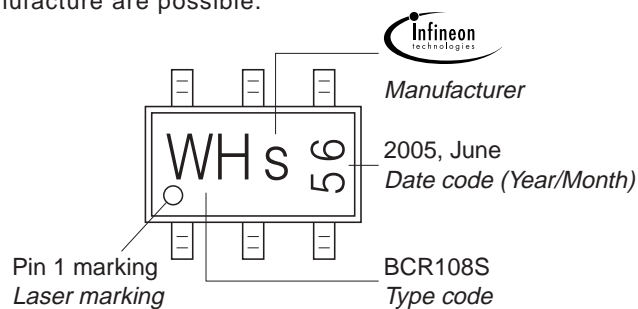


Foot Print



Marking Layout (Example)

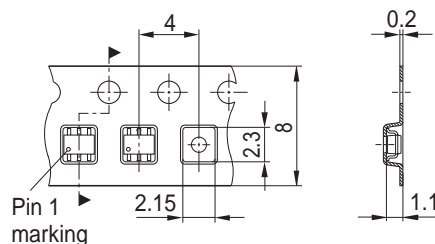
Small variations in positioning of Date code, Type code and Manufacture are possible.



Standard Packing

Reel \varnothing 180 mm = 3.000 Pieces/Reel
 Reel \varnothing 330 mm = 10.000 Pieces/Reel

For symmetric types no defined Pin 1 orientation in reel.



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