

Silicon Schottky Diodes

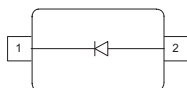
- For low-loss, fast-recovery, meter protection, bias isolation and clamping application
- Integrated diffused guard ring
- Low forward voltage
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101



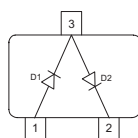
BAT64



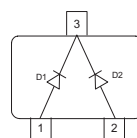
BAT64-02W BAT64-02V



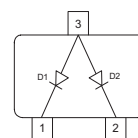
BAT64-04 BAT64-04W



BAT64-05 BAT64-05W



BAT64-06 BAT64-06W



ESD (Electrostatic discharge) sensitive device, observe handling precaution!

Type	Package	Configuration	L_S (nH)	Marking
BAT64	SOT23	single	1.8	63s
BAT64-02V	SC79	single	0.6	t
BAT64-02W*	SCD80	single	0.6	64
BAT64-04	SOT23	series	1.8	64s
BAT64-04W	SOT323	series	1.4	64s
BAT64-05	SOT23	common cathode	1.8	65s
BAT64-05W	SOT323	common cathode	1.4	65s
BAT64-06	SOT23	common anode	1.8	66s
BAT64-06W	SOT323	common anode	1.4	66s

* Not for new design

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	40	V
Forward current	I_F	250	mA
Non-repetitive peak surge forward current ($t \leq 10\text{ms}$)	I_{FSM}	800	
Average rectified forward current (50/60Hz, sinus)	I_{FAV}	120	
Total power dissipation	P_{tot}		mW
BAT64, $T_S \leq 86\text{°C}$		250	
BAT64-02W, -02V $T_S \leq 121\text{°C}$		250	
BAT64-04, BAT64-06, $T_S \leq 61\text{°C}$		250	
BAT64-04W, BAT64-06W, $T_S \leq 111\text{°C}$		250	
BAT64-05, $T_S \leq 36\text{°C}$		250	
BAT64-05W, $T_S \leq 104\text{°C}$		250	
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾	R_{thJS}		K/W
BAT64		≤ 255	
BAT64-02W, -02V		≤ 115	
BAT64-04, BAT64-06,		≤ 355	
BAT64-04W, BAT64-06W		≤ 155	
BAT64-05		≤ 455	
BAT64-05W		≤ 185	

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

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Breakdown voltage $I_{(BR)} = 10\text{ }\mu\text{A}$	$V_{(BR)}$	40	-	-	V
Reverse current $V_R = 30\text{ V}$ $V_R = 30\text{ V}, T_A = 85\text{ }^{\circ}\text{C}$	I_R	- -	- -	2 200	μA
Forward voltage $I_F = 1\text{ mA}$ $I_F = 10\text{ mA}$ $I_F = 30\text{ mA}$ $I_F = 100\text{ mA}$	V_F	270 310 370 500	320 385 440 570	350 430 520 750	mV
AC Characteristics					
Diode capacitance $V_R = 1\text{ V}, f = 1\text{ MHz}$	C_T	-	4	6	pF
Reverse recovery time $I_F = 10\text{ mA}, I_R = 10\text{ mA}$, measured $I_R = 1\text{ mA}$, $R_L = 100\text{ }\Omega$	t_{rr}	-	-	5	ns

Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



Reverse current $I_R = f(V_R)$

$T_A = \text{Parameter}$



Forward current $I_F = f(V_F)$

$T_A = \text{Parameter}$



Forward current $I_F = f(T_S)$

BAT64



Forward current $I_F = f(T_S)$

BAT64-02W, -02V



Forward current $I_F = f(T_S)$

BAT64-04, BAT64-06



Forward current $I_F = f(T_S)$

BAT64-04W, BAT64-06W



Forward current $I_F = f(T_S)$

BAT64-05



Forward current $I_F = f(T_S)$

BAT64-05W



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

BAT64-02W, -02V



Permissible Pulse Load

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

BAT64-02W, -02V



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

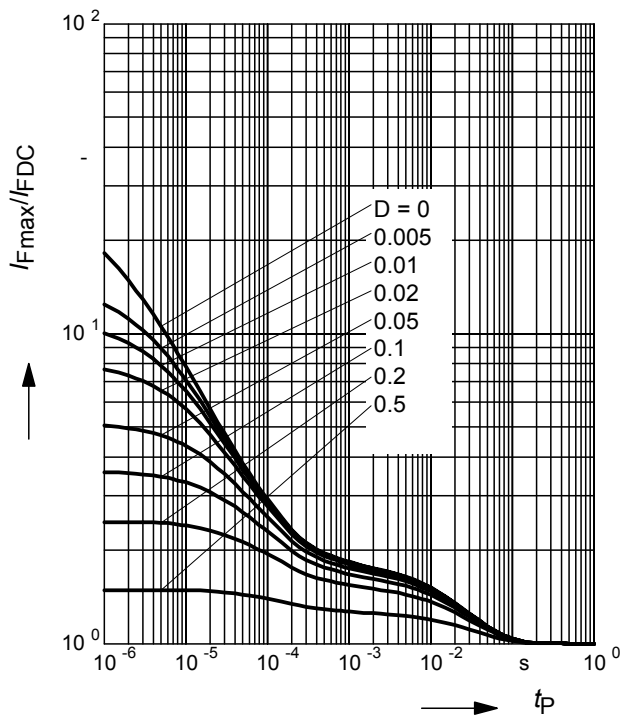
BAT64-04W, BAT64-06W



Permissible Pulse Load

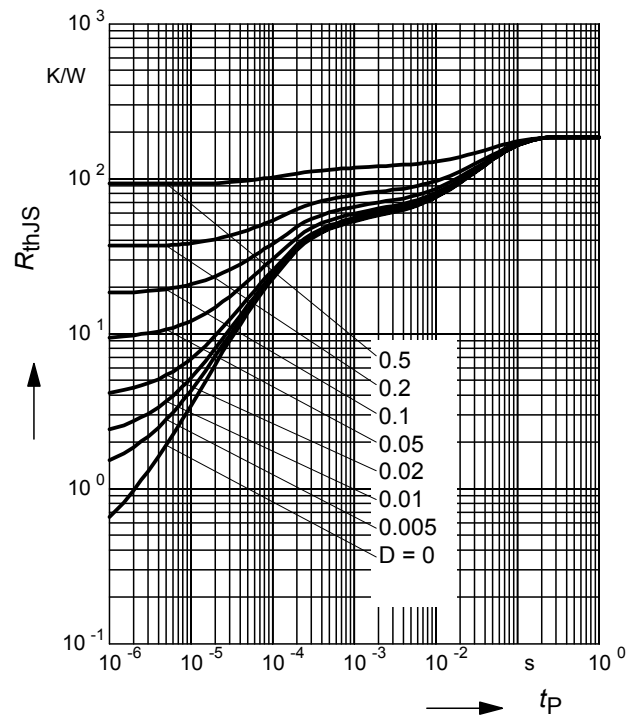
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAT64-04W, BAT64-06W



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

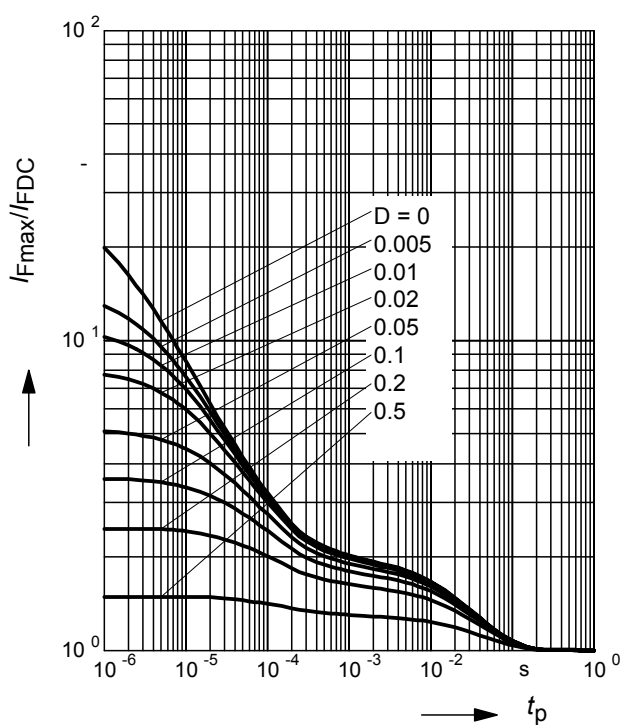
BAT64-05W



Permissible Pulse Load

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

BAT64-05W



Package Outline



Foot Print



Marking Layout (Example)

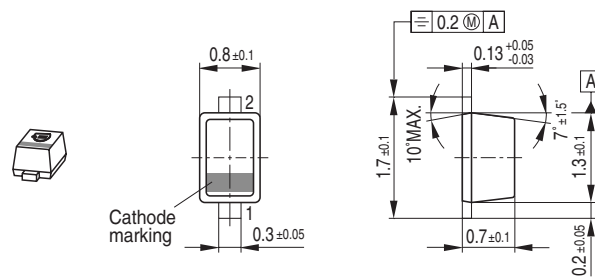


Standard Packing

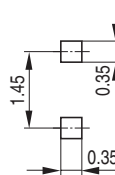
Reel ø180 mm = 3.000 Pieces/Reel
 Reel ø180 mm = 8.000 Pieces/Reel (2 mm Pitch)
 Reel ø330 mm = 10.000 Pieces/Reel



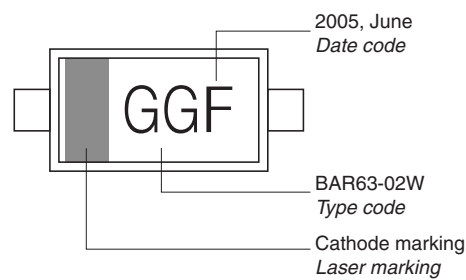
Package Outline



Foot Print

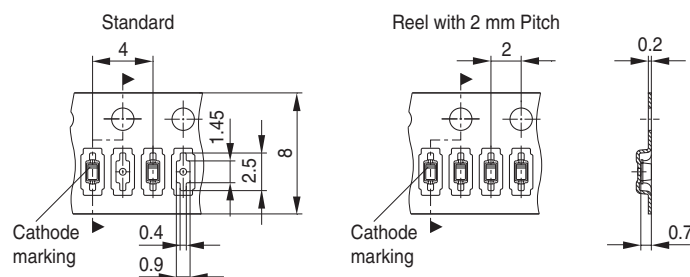


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
 Reel ø180 mm = 8.000 Pieces/Reel (2 mm Pitch)
 Reel ø330 mm = 10.000 Pieces/Reel

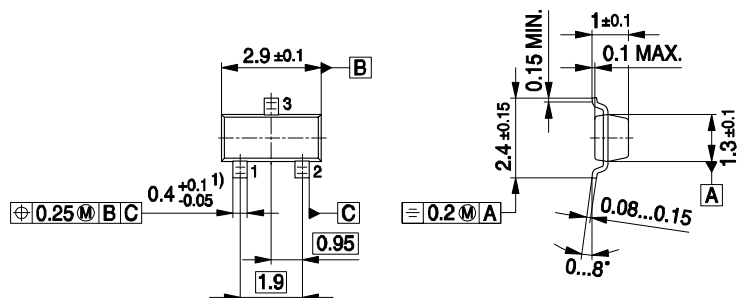


Date Code marking for discrete packages with one digit (SCD80, SC79, SC75¹⁾) CES-Code

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.

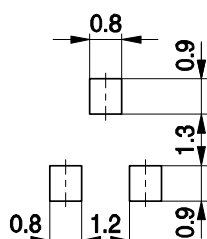
Package Outline



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

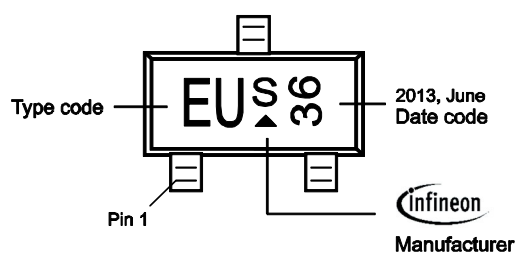
SOT23-PO V08

Foot Print



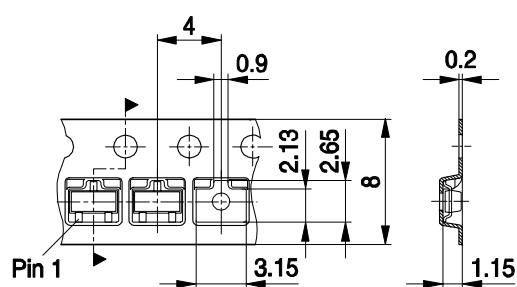
SOT23-FPR V08

Marking Layout



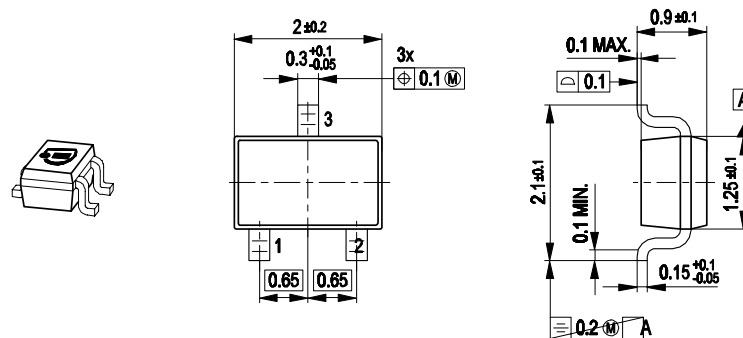
Standard Packing

Reel o 180 mm: 3.000 Pieces / Reel
Reel o 330 mm = 10.000 Pieces / Reel

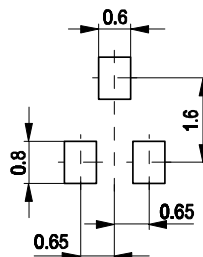


SOT23-TP V02

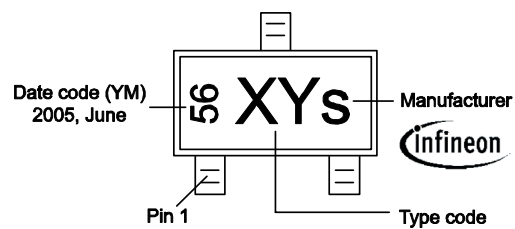
Package Outline



Foot Print

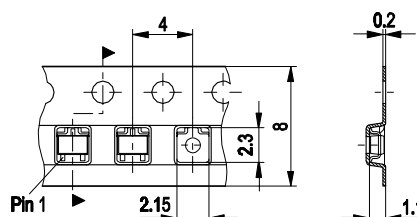


Marking Layout (Example)



Standard Packing

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



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Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331