BYY53 / BYY54
25A Silicon Power Rectifier Diode

Description

The BYY53/54 are hermetically sealed 25A-diodes, which are available in different reverse voltage classes up to 1500V.

The diodes can be delivered with limited forward voltage and reverse current differences for parallel connecting in rectifier stacks and back-off-diodes

Features

- Forward current 25A
- Reverse voltage 75V – 1500V
- Hermetic press-fit package
- Available in different modifications of the package

Applications

- Power supplies
- Rectifier diode in car generators
- Rectifier bridges/stacks
- Back-off-diodes

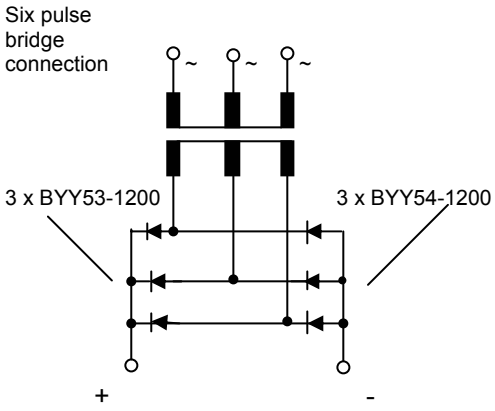
Pinout details



BYY53: 1 – cathode; 2 - anode

BYY54: 1 – anode; 2 - cathode

Typical application circuit



Ordering information

Device	Quantity per box	Options
BYY53-75; …; BYY53-1500	500	The package quantities for the different package modifications are included in "PressFitPackageModifications.pdf"
BYY54-75; …; BYY54-1500	500	

Device marking

Devices are identified by type. Colour of marking: BYY53- black, BYY54 – red

422..... date code 422 = 2004 week 22
ZETEX
BYY53..... diode type
400..... repetitive peak reverse voltage V_{RRM} (in V) 400

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Absolute maximum ratings (at T_{amb} = 25°C unless otherwise stated)

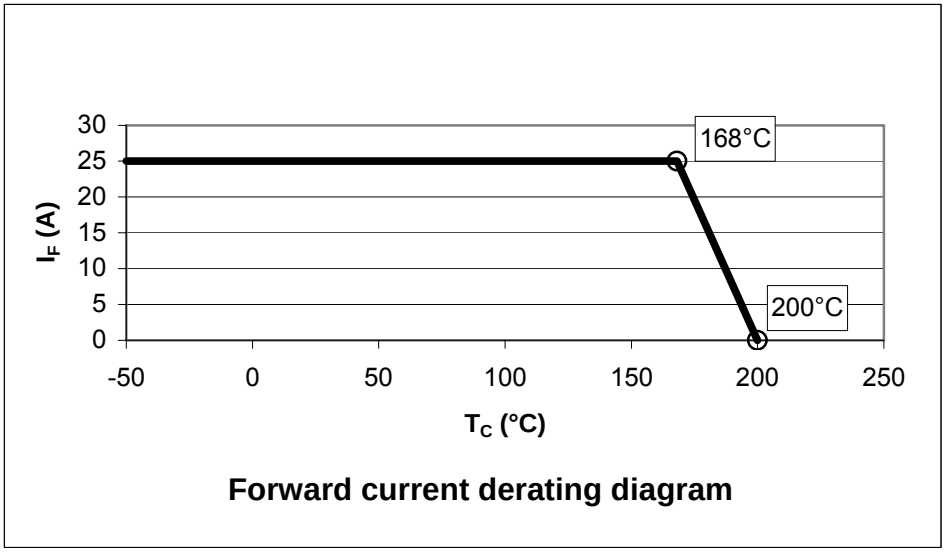
Parameter			Symbol		Unit	Test condition
Repetitive peak reverse voltage	BYY53-75	BYY54-75	V_{RRM}	75	V	T_c = 150°C
	BYY53-100	BYY54-100		100		
	BYY53-150	BYY54-150		150		
	BYY53-200	BYY54-200		200		
	BYY53-300	BYY54-300		300		
	BYY53-400	BYY54-400		400		
	BYY53-500	BYY54-500		500		
	BYY53-600	BYY54-600		600		
	BYY53-700	BYY54-700		700		
	BYY53-800	BYY54-800		800		
	BYY53-900	BYY54-900		900		
	BYY53-1000	BYY54-1000		1000		
	BYY53-1100	BYY54-1100		1100		
	BYY53-1200	BYY54-1200		1200		
	BYY53-1300	BYY54-1300		1300		
	BYY53-1400	BYY54-1400		1400		
	BYY53-1500	BYY54-1500		1500		
Forward current, arithmetic value			I_{FAV}	25	A	
Surge forward current			I_{FSM}	425	A	half-sine wave, ≤ 10 ms
				350		T_J = 175°C half-sine wave, ≤ 10 ms
Maximum rated value			$\int i^2dt$	900	A^2s	half-sine wave, ≤ 10 ms
				780		T_J = 175°C half-sine wave, ≤ 10 ms
Repetitive peak forward current			$I_{FRM}=\pi*I_{FAV}$	79	A	f = >15 Hz
Effective forward current			I_{FRMS}	45	A	
Junction temperature			T_{Jmax}	200	°C	
Storage temperature range			T_{stg}	- 50 to + 175	°C	

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Thermal resistance

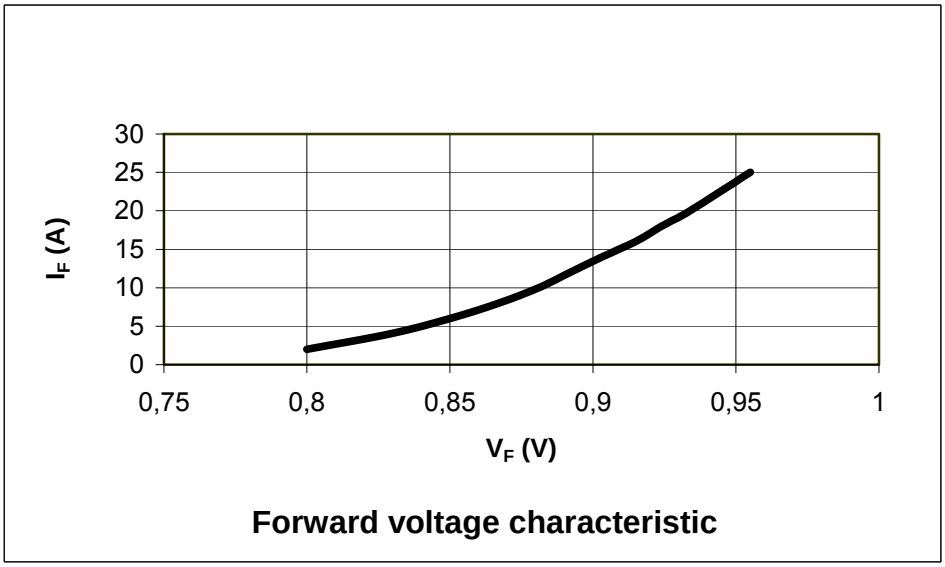
Parameter	Symbol	Value	Unit
Junction to case	$R_{\theta JC}$	1.2	°C/W

Thermal characteristics



Forward current derating diagram

Electrical characteristics (at T_{amb} = 25°C unless otherwise stated)



Forward voltage characteristic

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Electrical characteristics (at T_{amb} = 25°C unless otherwise stated)

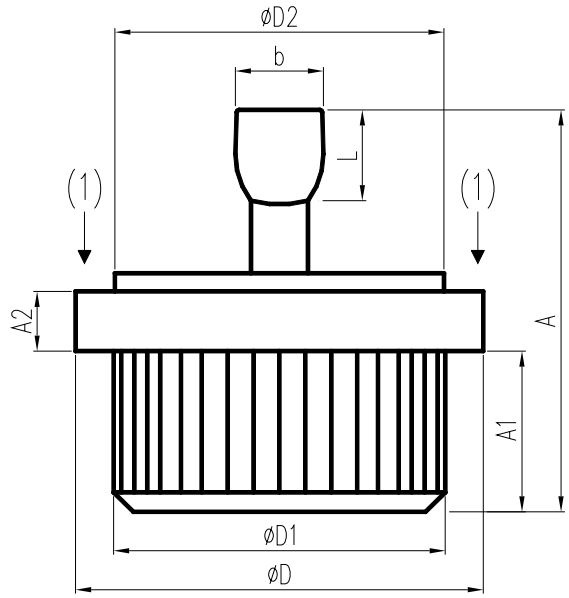
Parameter		Symbol	Min.	Typ.	Max.	Unit	Test contitions
Forward voltage	BYY53-75...1200 BYY54-75...1200	V_F	-	0.95	1.1	V	I_F = 25 A, measuring time 10ms (half-sine wave)
	BYY53-1300...1500 BYY54-1300...1500		-	1.1	1.15		
Forward voltage (information values)	BYY53-75...1200 BYY54-75...1200	V_F	-	0.82	-	V	I_F = 20 A, measuring time 10ms (half-sine wave),T_J = 150°C
	BYY53-1300...1500 BYY54-1300...1500		-	0.85	-		
	BYY53-75...1200 BYY54-75...1200	V_F	-	-	1.20	V	I_F = 35 A,
	BYY53-1300...1500 BYY54-1300...1500		-	-	1.25		
Reverse current	BYY53-75...150 BYY54-75...150	I_{RRM}	-	-	3	mA	T_J = 150°C, at V_{RRM}
	BYY53-200...1500 BYY54-200...1500		-	-	1.5		
	BYY53-75...400 BYY54-75...400	I_{RRM}	-	-	0.25	mA	at V_{RRM}
	BYY53-500...1500 BYY54-500...1500		-	-	0.1		
Threshold voltage (information value)		$V_{(FO)}$	-	0.66	-	V	T_J = 175°C
Slope resistance (information value)		r_F	-	5.75	-	mΩ	T_J = 175°C

Options: Electrical characteristics for parallel connecting
(at T_{amb} = 25°C unless otherwise stated)

Option	Parameter	Symbol	Min.	Typ.	Max.	Unit	Test contitions
1	Forward voltage difference in one category of forward voltage	ΔV_F	-	-	0.05	V	I_F = 25 A, measuring time 10ms (half-sine wave)
2	Reverse current in one category of forward voltage (only for BYY53-300…1500 and BYY54-300…1500)	I_R	-	-	0.01	mA	at V_{RRM}

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Packaging details



Package dimensions

Dimensions in millimeters are control dimensions, dimensions in inches are approximate

DIM	Millimeters			Inches		
	MIN	TYP	MAX	MIN	TYP	MAX
A	15,00	15,50	16,00	0,591	0,610	0,630
A1	5,90	6,10	6,30	0,232	0,240	0,248
A2	2,10	2,30	2,50	0,083	0,091	0,098
b	3,10	3,40	3,70	0,122	0,134	0,146
D	15,50	15,70	15,90	0,610	0,618	0,626
D1	12,75	12,80	12,85	0,502	0,504	0,506
D2	12,30	12,50	12,70	0,484	0,492	0,500
L	3,00	3,50	4,00	0,118	0,138	0,157

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