

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

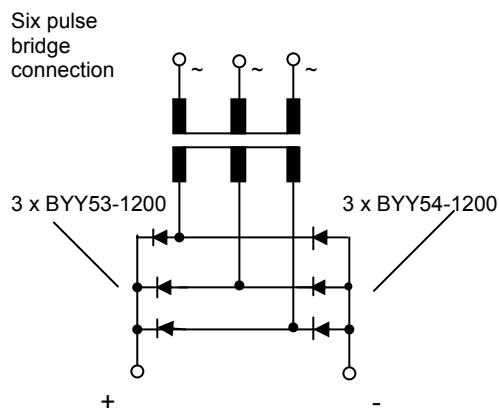
Pinout details



BYY53: 1 – cathode; 2 - anode

BYY54: 1 – anode; 2 - cathode

Typical application circuit

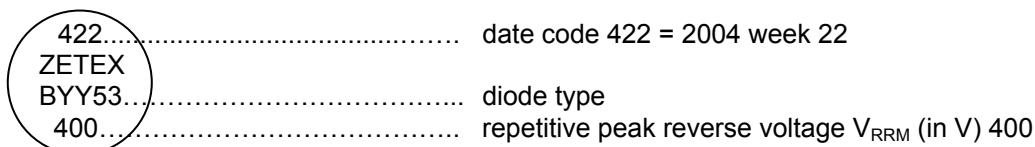


Ordering information

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



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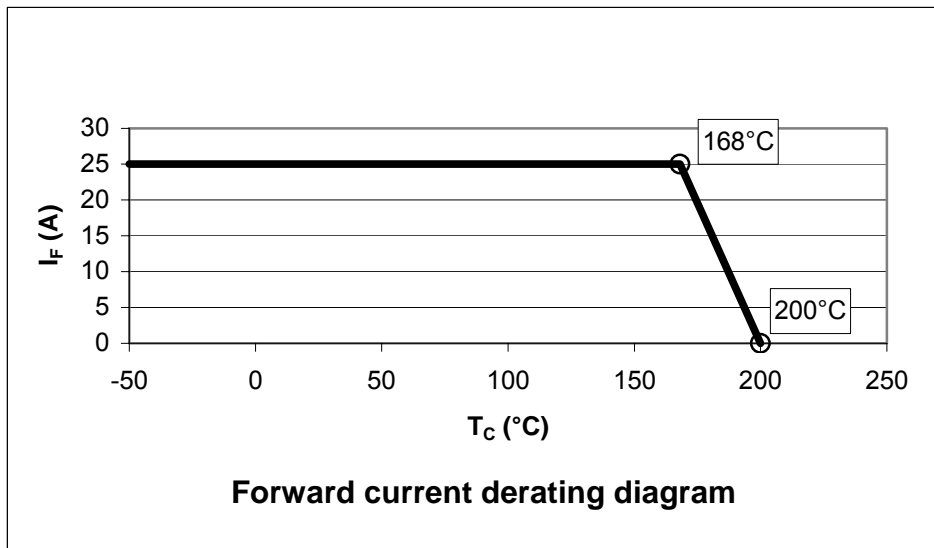
Absolute maximum ratings (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter		Symbol		Unit	Test condition	
Repetitive peak reverse voltage	BYY53-75	BYY54-75	V_{RRM}	75	V	$T_c = 150^{\circ}\text{C}$
	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		$T_J = 175^{\circ}\text{C}$ half-sine wave, ≤ 10 ms	
Maximum rated value		$\int i^2 dt$	900	A^2s	half-sine wave, ≤ 10 ms	
			780		$T_J = 175^{\circ}\text{C}$ 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	$^{\circ}\text{C}$		
Storage temperature range		T_{stg}	- 50 to + 175	$^{\circ}\text{C}$		

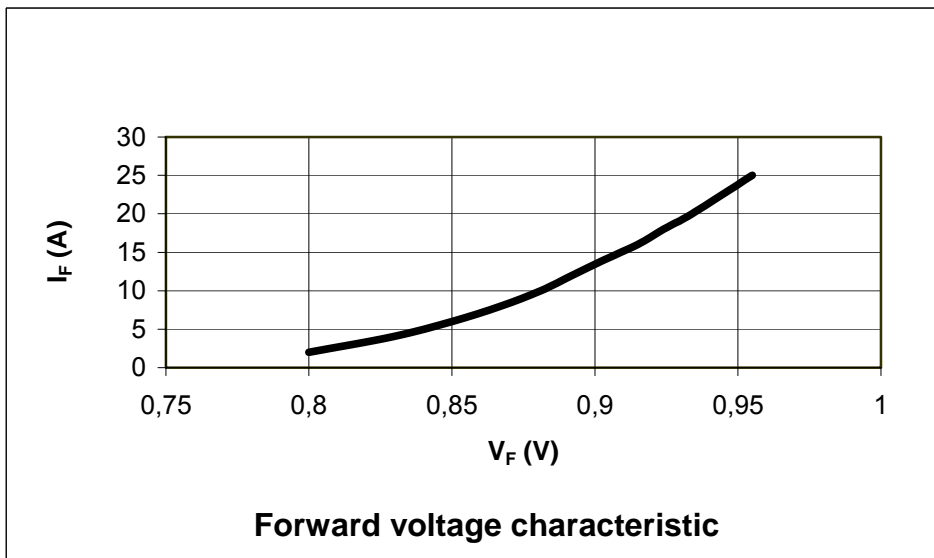
Thermal resistance

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

Thermal characteristics



Electrical characteristics (at $T_{amb} = 25^{\circ}C$ unless otherwise stated)



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Electrical characteristics (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

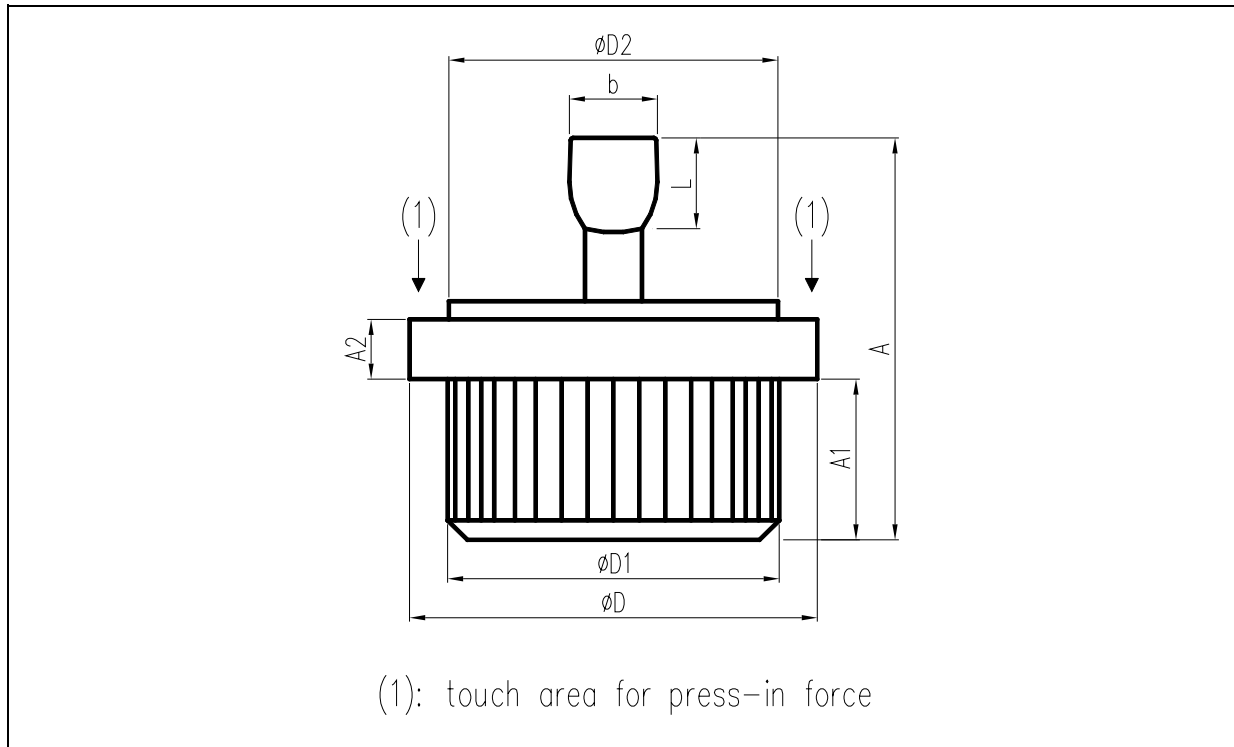
Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Forward voltage	BYY53-75...1200 BYY54-75...1200	V_F	-	0.95	1.1	V	$I_F = 25\text{ A}$, measuring time 10ms (half-sine wave)
	BYY53-1300...1500 BYY54-1300...1500		-	1.1	1.15		
Forward voltage (information values)	BYY53-75...1200 BYY54-75...1200	V_F	-	0.82	-	V	$I_F = 20\text{ A}$, measuring time 10ms (half-sine wave), $T_J = 150^{\circ}\text{C}$
	BYY53-1300...1500 BYY54-1300...1500		-	0.85	-		
	BYY53-75...1200 BYY54-75...1200	V_F	-	-	1.20	V	$I_F = 35\text{ A}$,
	BYY53-1300...1500 BYY54-1300...1500		-	-	1.25		
Reverse current	BYY53-75...150 BYY54-75...150	I_{RRM}	-	-	3	mA	$T_J = 150^{\circ}\text{C}$, 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	$T_J = 175^{\circ}\text{C}$
Slope resistance (information value)		r_F	-	5.75	-	m Ω	$T_J = 175^{\circ}\text{C}$

Options: Electrical characteristics for parallel connecting

(at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

Option	Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
1	Forward voltage difference in one category of forward voltage	ΔV_F	-	-	0.05	V	$I_F = 25\text{ A}$, 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}

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

Europe	Americas	Asia Pacific	Corporate Headquarters
Zetex GmbH Streitfeldstraße 19 D-81673 München Germany	Zetex Inc 700 Veterans Memorial Highway Hauppauge, NY 11788 USA	Zetex (Asia Ltd) 3701-04 Metroplaza Tower 1 Hing Fong Road, Kwai Fong Hong Kong	Zetex Semiconductors plc Zetex Technology Park, Chadderton Oldham, OL9 9LL United Kingdom
Telefon: (49) 89 45 49 49 0 Fax: (49) 89 45 49 49 49 europe.sales@zetex.com	Telephone: (1) 631 360 2222 Fax: (1) 631 360 8222 usa.sales@zetex.com	Telephone: (852) 26100 611 Fax: (852) 24250 494 asia.sales@zetex.com	Telephone (44) 161 622 4444 Fax: (44) 161 622 4446 hq@zetex.com

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