Description

The BYY57A/58A are hermetically sealed 50A-diodes, which are available in different reverse voltage classes up to 800V.

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 50A
- Reverse voltage 75V – 800V
- Hermetic press-fit package
- Available in different modifications of the package
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative.**
  https://www.diodes.com/quality/product-definitions/

Applications

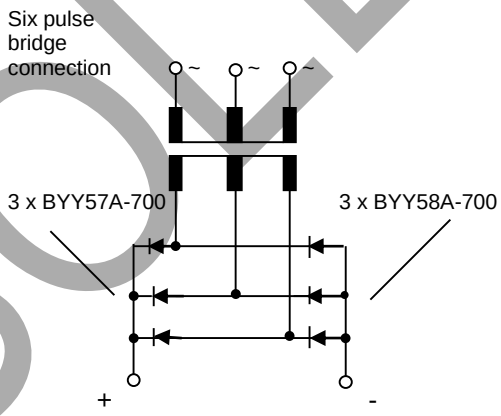
- Power supplies
- Rectifier diode in car generators
- Rectifier bridges/stacks
- Back-off-diodes

Pinout details

BYY57A: 1 – cathode; 2 - anode

BYY58A: 1 – anode; 2 - cathode

Typical application circuit



Ordering information

Device	Quantity per box	Options
BYY57A-75; …; BYY57A-800	500	The package quantities for the different package modifications are included in "PressFitPackageModifications.pdf"
BYY58A-75; …; BYY58A-800	500	

Device marking

Devices are identified by type. Colour of marking: BYY57A- black, BYY58A – red

422 ZETEX BYY57... A400

422..... date code 422 = 2004 week 22

BYY57..... diode type

A400..... 50A diode / repetitive peak reverse voltage V_{RRM} (in V) 400

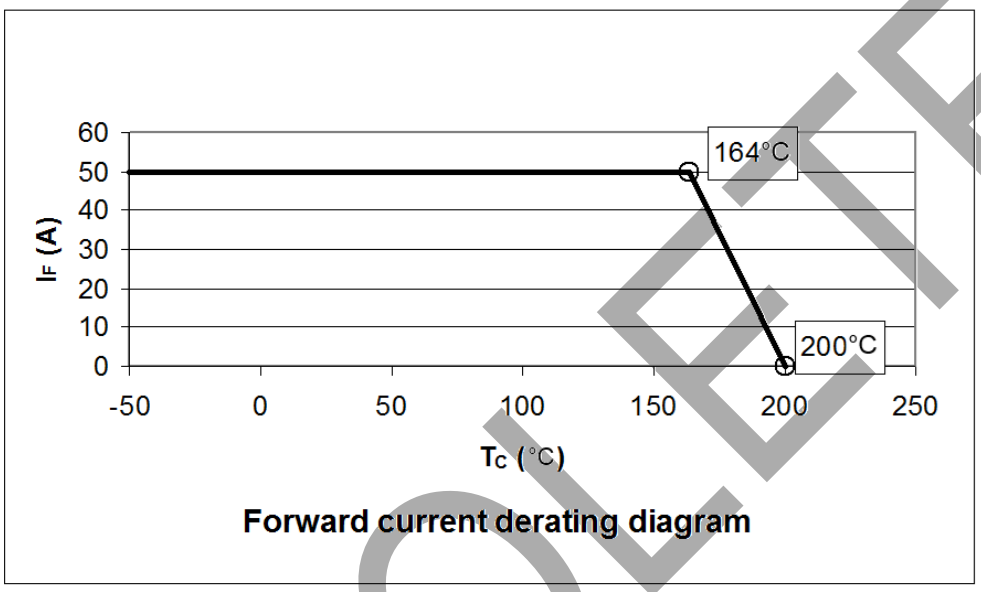
Absolute maximum ratings (at T_{amb} = 25°C unless otherwise stated)

Parameter			Symbol		Unit	Test condition
Repetitive peak reverse voltage	BYY57A-75	BYY58A-75	V_{RRM}	75	V	T_c = 150°C
	BYY57A-100	BYY58A-100		100		
	BYY57A-150	BYY58A-150		150		
	BYY57A-200	BYY58A-200		200		
	BYY57A-300	BYY58A-300		300		
	BYY57A-400	BYY58A-400		400		
	BYY57A-500	BYY58A-500		500		
	BYY57A-600	BYY58A-600		600		
	BYY57A-700	BYY58A-700		700		
	BYY57A-800	BYY58A-800		800		
Forward current, arithmetic value			I_{FAV}	50	A	
Surge forward current			I_{FSM}	900	A	half-sine wave, ≤ 10 ms
				800		T_J = 175°C half-sine wave, ≤ 10 ms
Maximum rated value			$\int i^2dt$	4050	A^2s	half-sine wave, ≤ 10 ms
				3200		T_J = 175°C half-sine wave, ≤ 10 ms
Repetitive peak forward current			$I_{FRM}=\pi*I_{FAV}$	157	A	f = >15 Hz
Effective forward current			I_{FRMS}	78	A	
Junction temperature			T_{Jmax}	200	°C	
Storage temperature range			T_{stg}	- 50 to + 175	°C	

Thermal resistance

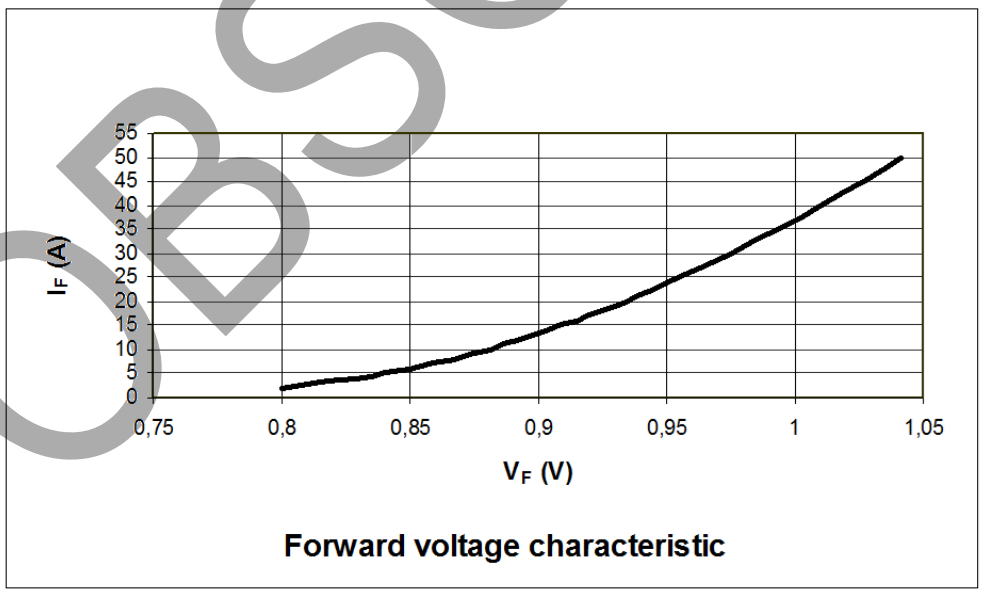
Parameter	Symbol	Value	Unit
Junction to case	$R_{\theta JC}$	0.8	°C/W

Thermal characteristics



Forward current derating diagram

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



Forward voltage characteristic

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

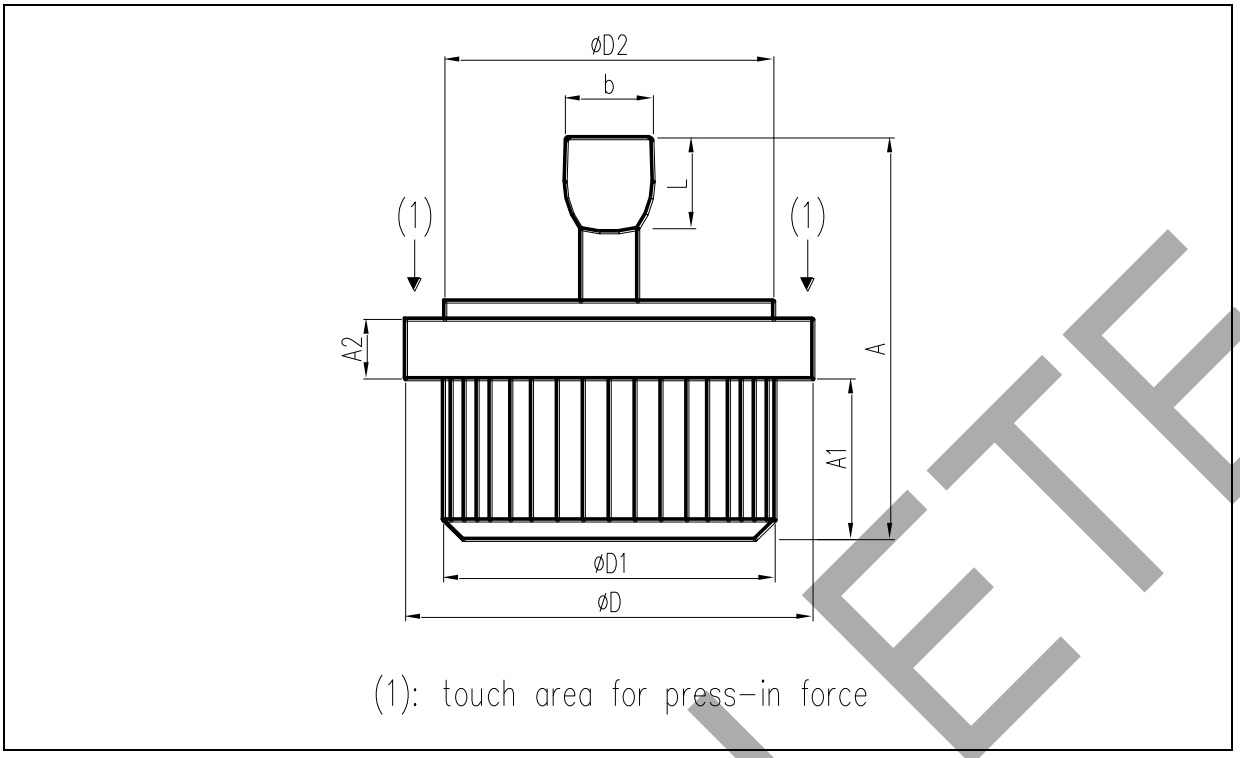
Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Forward voltage	BYY57A-75...800 BYY58A-75...800	V_F	-	1.05	1.15	V	I_F = 50 A, measuring time 10ms (half-sine wave)
Forward voltage (information values)	BYY57A-75...800 BYY58A-75...800	V_F	-	0.810	-	V	I_F = 20 A, measuring time 10ms (half-sine wave), T_J = 150°
	BYY57A-75...800 BYY58A-75...800	V_F	-	-	1.2	V	I_F = 75 A
Reverse current	BYY57A-75...150 BYY58A-75...150	I_{RRM}	-	-	3	mA	T_J = 150°C, at V_{RRM}
	BYY57A-200...800 BYY58A-200...800		-	-	1.5		
	BYY57A-75...400 BYY58A-75...400	I_{RRM}	-	-	0.25	mA	at V_{RRM}
	BYY57A-500...800 BYY58A-500...800		-	-	0.1		
Threshold voltage (information value)		$V_{(FO)}$	-	0.66	-	V	T_J = 175°C
Slope resistance (information value)		r_F	-	4.5	-	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 conditions
1	Forward voltage difference in one category of forward voltage	ΔV_F	-	-	0.05	V	I_F = 50 A, measuring time 10ms (half-sine wave)
2	Reverse current in one category of forward voltage (only for BYY57A-300…800 and BYY58A-300…800)	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	3,50	3,80	4,10	0,138	0,150	0,161
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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