### **Damper-Modulator** fast, high-voltage

# BYM358DX

### **FEATURES**

- Low forward volt drop
- Ultra fast switching
- Soft recovery characteristic
- High thermal cycling
- performance
- Isolated mounting tab

### **SYMBOL**

PINNING



## QUICK REFERENCE DATA

DAMPER	MODULATOR
V <sub>R</sub> =1500 V	V <sub>R</sub> =600 V
$V_F \le 1.5 V$	$V_F \le 1.08 \text{ V}$
I <sub>F(peak)</sub> =7 A	I <sub>F(peak)</sub> = 7 A
$I_{FSM} \le 66 A$	$I_{FSM} \le 70 \text{ A}$
t <sub>rr</sub> ≤ 170 ns	t <sub>rr</sub> ≤ 60 ns

## **GENERAL DESCRIPTION**

Combined damper and modulator diodes in an isolated plastic envelope for horizontal deflection in PC monitors.

The BYM358DX contains diodes with performance characteristics designed specifically for applications from 32kHz to 120kHz

The BYM358DX series is supplied in the conventional leaded SOT399 package.

### LIMITING VALUES

 $T_i = 25$  °C unless otherwise stated

#### PIN DESCRIPTION 1 modulator anode 2 common anode/cathode 3 damper cathode

### **SOT399**



			DAM	IPER	MODU	LATOR	
SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	MIN	MAX	UNIT
V <sub>RSM</sub>	Peak non-repetitive reverse voltage.		-	1500	-	600	V
$V_{RRM}$	Peak repetitive reverse voltage		-	1500	-	600	V
V <sub>RWM</sub>	Crest working reverse voltage		-	1300	-	600	V
I <sub>F(peak)</sub>	Peak forward current	31-70 kHz monitor.	-	7	-	7	А
I <sub>F(RMS)</sub>	RMS forward current	sinusoidal;a=1.57	-	15.7	-	14.1	А
I <sub>FSM</sub>	Peak non-repetitive forward current	$  t = 10 ms   t = 8.3 ms   sinusoidal; with   reapplied   V_{RVVM(MAX)} $	-	60 66	-	70 77	A A
T <sub>stg</sub> T <sub>J</sub>	Storage temperature Operating junction temperature		-40 -	150 150	-40 -	150 150	Ĵ Ĵ

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# ISOLATION LIMITING VALUE & CHARACTERISTIC

 $T_{hs}$  = 25 °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V <sub>isol</sub>	Repetitive peak voltage from all three terminals to external heatsink	R.H. $\leq$ 65 % ; clean and dustfree	-	-	2500	V
C <sub>isol</sub>	Capacitance from T2 to external heatsink	f = 1 MHz	-	22	-	pF

### THERMAL RESISTANCES

			DAM	IPER	MODU	LATOR	
SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	TYP.	MAX.	UNIT
R <sub>th j-hs</sub>	Thermal resistance junction to heatsink	with heatsink compound	-	3.5	-	4	K/W
R <sub>th j-a</sub>	Thermal resistance junction to ambient	in free air.	35	-	35	-	K/W

### STATIC CHARACTERISTICS OF DAMPER

 $T_j = 25$  °C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	TYP	MAX.	UNIT
V <sub>F</sub> I <sub>R</sub>	Forward voltage Reverse current	$I_{F} = 6.5 \text{ A}$ $I_{F} = 6.5 \text{ A}; T_{j} = 125^{\circ}\text{C}$ $V_{R} = V_{RVM}$ $V_{P} = V_{PVMM}$	1.3 1.2 10 300	1.6 1.5 100 500	V V μΑ μΑ
		$T_j = 100$ °C			

### STATIC CHARACTERISTICS OF MODULATOR

 $T_i = 25$  °C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	TYP	MAX.	UNIT
V <sub>F</sub> I <sub>R</sub>	Forward voltage Reverse current.		1.2 0.95 1.3 10 100	1.3 1.08 1.45 50 350	V V μΑ μΑ

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### ELECTRICAL CHARACTERISTICS OF DAMPER

 $T_i = 25$  °C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
t <sub>rr</sub>	Reverse recovery time	$I_F = 1 \text{ A}; V_R \ge 30 \text{ V};$ - $dI_F/dt = 50 \text{ A/us}$	130	170	ns
Q <sub>s</sub> V <sub>fr</sub>	Reverse recovery charge Peak forward recovery voltage	2 A,30 V,20 A/μs I <sub>F</sub> = 6.5 A; dI <sub>F</sub> /dt = 50 A/μs	0.65 29	0.9 -	μC V

## ELECTRICAL CHARACTERISTICS OF MODULATOR

 $T_j = 25$  °C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
t <sub>rr</sub>	Reverse recovery time	$I_{F} = 1 \text{ A}; V_{R} \ge 30 \text{ V};$ -dL-/dt = 100 A/us	35	60	ns
I <sub>rrm</sub>	Peak reverse recovery current	$I_F = 10 \text{ A to } V_R \ge 30 \text{ V};$ $I_F/dt = 50 \text{ A/us; } T_i = 100^{\circ}\text{C}$	3.0	5.5	A
Q <sub>s</sub> V <sub>fr</sub>	Reverse recovery charge Peak forward recovery voltage	2 A,30 V,20 A/μs I <sub>F</sub> = 10 A; dI <sub>F</sub> /dt = 10 A/μs	40 5.0	70 -	nC V

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### **MECHANICAL DATA**



Notes

Refer to mounting instructions for F-pack envelopes.
Epoxy meets UL94 V0 at 1/8".

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### DEFINITIONS

Data sheet status					
Objective specification	This data sheet contains target or goal specifications for product development.				
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.				
Product specification	This data sheet contains final product specifications.				
Limiting values					
Limiting values are given or more of the limiting val operation of the device at this specification is not im	in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one ues may cause permanent damage to the device. These are stress ratings only and these or at any other conditions above those given in the Characteristics sections of uplied. Exposure to limiting values for extended periods may affect device reliability.				
Application information					
Where application information is given, it is advisory and does not form part of the specification.					
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