

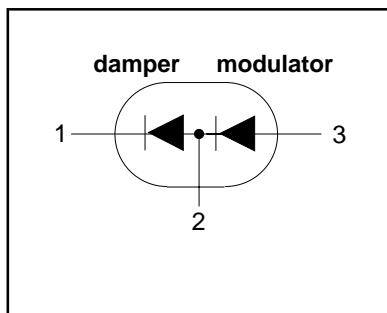
# Dual diode fast, high-voltage

**BYM359X**

## FEATURES

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

## SYMBOL



## QUICK REFERENCE DATA

DAMPER	MODULATOR
$V_R = 1500\text{ V}$	$V_R = 800\text{ V}$
$V_F \leq 1.3\text{ V}$	$V_F \leq 1.45\text{ V}$
$I_{F(RMS)} = 15.7\text{ A}$	$I_{F(RMS)} = 11\text{ A}$
$I_{FSM} \leq 60\text{ A}$	$I_{FSM} \leq 60\text{ A}$
$t_{tr} \leq 300\text{ ns}$	$t_{tr} \leq 145\text{ ns}$

## GENERAL DESCRIPTION

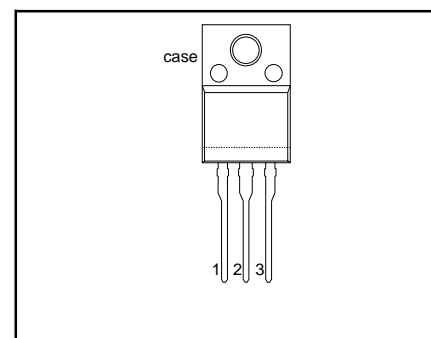
Combined damper and modulator diodes in an isolated plastic envelope for horizontal deflection in colour TV and PC monitors. The BYM359X contains diodes with performance characteristics designed specifically for applications from 16kHz to 56kHz

The BYM359X series is supplied in the conventional leaded SOT186A package.

## PINNING

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

## SOT186A



## LIMITING VALUES

$T_j = 25\text{ }^\circ\text{C}$  unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	DAMPER		MODULATOR		UNIT
			MIN	MAX	MIN	MAX	
$V_{RSM}$	Peak non-repetitive reverse voltage.		-	1500	-	800	V
$V_{RRM}$	Peak repetitive reverse voltage		-	1500	-	600	V
$V_{RWM}$	Crest working reverse voltage		-	1300	-	600	V
$I_{F(AV)}$	Average forward current	sinusoidal; $a=1.57$	-	10	-	8	A
$I_{F(RMS)}$	RMS forward current		-	15.7	-	11.0	A
$I_{FRM}$	Peak repetitive forward current	$t=25\text{ }\mu\text{s}$ $\delta=0.5$	-	20	-	16.0	A
$I_{FSM}$	Peak non-repetitive forward current	$T_{hs} \leq 83\text{ }^\circ\text{C}$	-	60	-	60	A
		$t = 10\text{ ms}$ $t = 8.3\text{ ms}$ sinusoidal; with reapplied $V_{RWM(MAX)}$	-	66	-	66	A
$T_{stg}$	Storage temperature		-40	150	-40	150	$^\circ\text{C}$
$T_j$	Operating junction temperature		-	150	-	150	$^\circ\text{C}$

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**ISOLATION LIMITING VALUE & CHARACTERISTIC** $T_{hs} = 25\text{ °C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{isol}$	R.M.S. isolation voltage from all three terminals to external heatsink	$f = 50\text{-}60\text{ Hz}$ ; sinusoidal waveform; R.H. $\leq 65\%$ ; clean and dustfree	-	-	2500	V
$C_{isol}$	Capacitance from T2 to external heatsink	$f = 1\text{ MHz}$	-	10	-	pF

**THERMAL RESISTANCES**

SYMBOL	PARAMETER	CONDITIONS	DAMPER		MODULATOR		UNIT
			TYP.	MAX.	TYP.	MAX.	
$R_{th\ j\text{-}hs}$	Thermal resistance junction to heatsink	with heatsink compound	-	4.8	-	4.8	K/W
$R_{th\ j\text{-}a}$	Thermal resistance junction to ambient	in free air.	55	-	-	55	K/W

**STATIC CHARACTERISTICS** $T_j = 25\text{ °C}$  unless otherwise stated

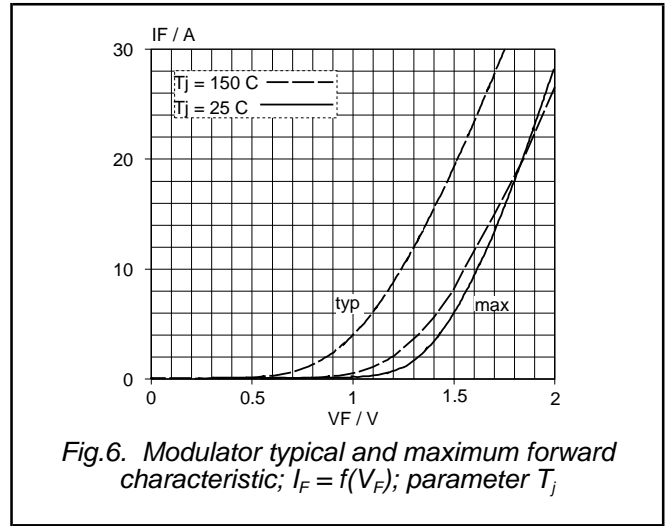
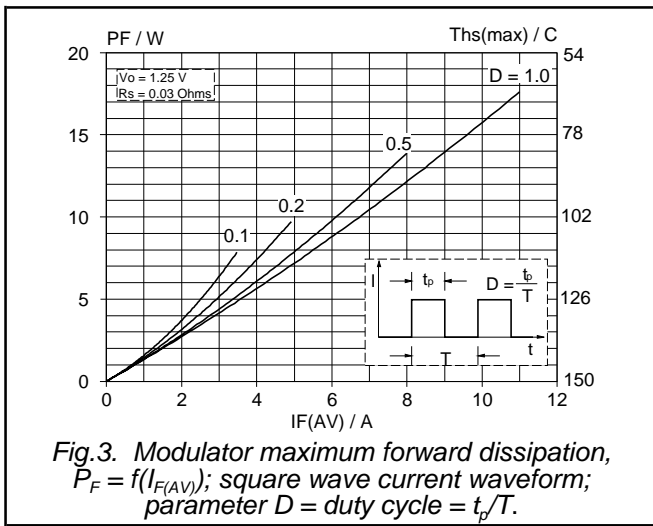
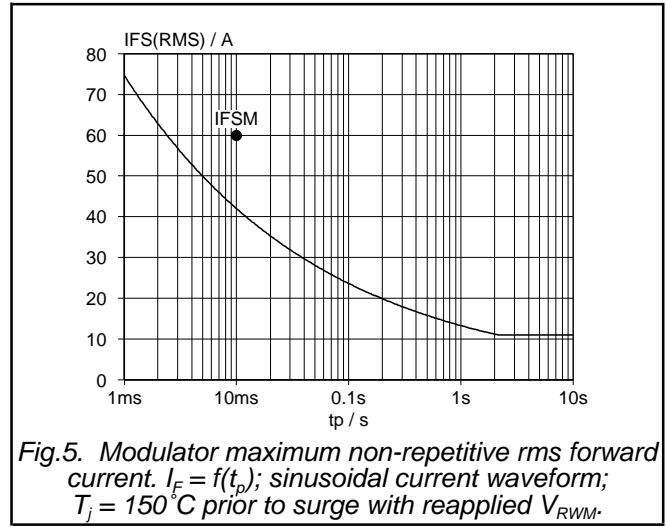
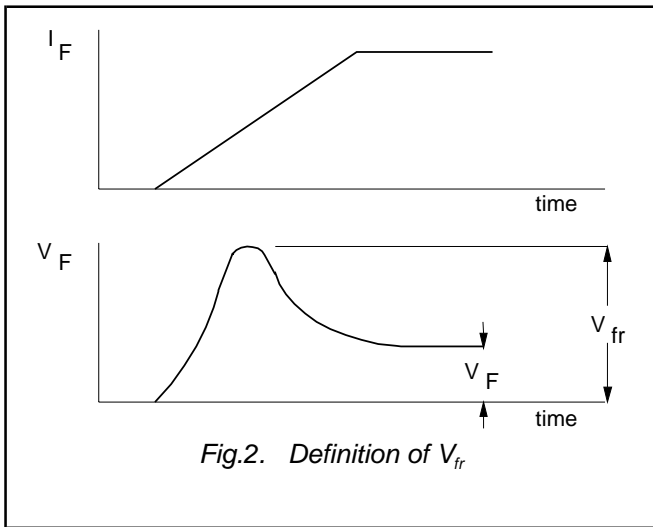
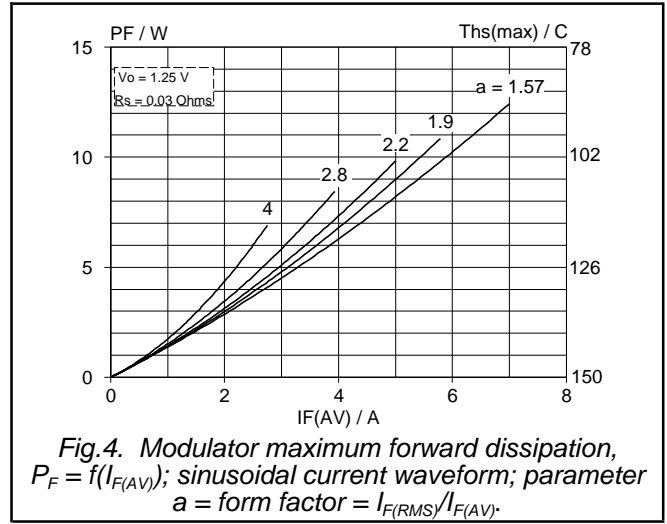
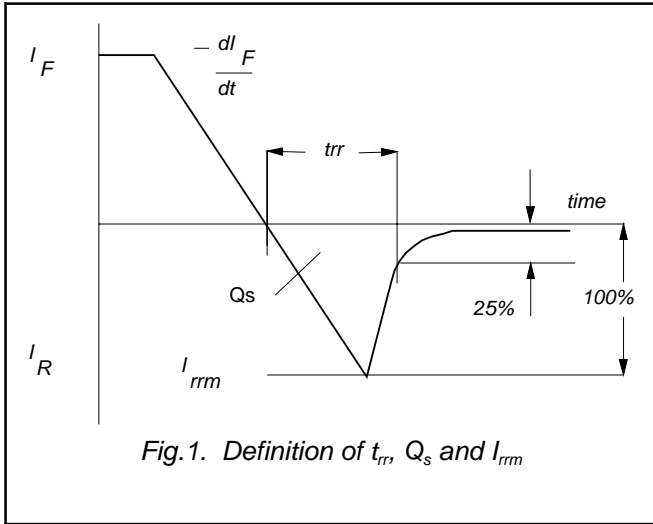
SYMBOL	PARAMETER	CONDITIONS	DAMPER		MODULATOR		UNIT
			TYP.	MAX.	TYP.	MAX.	
$V_F$	Forward voltage	$I_F = 6.5\text{ A}$	1.1	1.45	1.15	1.55	V
$I_R$	Reverse current	$I_F = 6.5\text{ A}$ ; $T_j = 125\text{ °C}$ $V_R = V_{RWM}$ $V_R = V_{RWM}$ $T_j = 100\text{ °C}$	1.05	1.3	1.1	1.45	V
			10	250	10	100	$\mu\text{A}$
			50	500	100	600	$\mu\text{A}$

**DYNAMIC CHARACTERISTICS** $T_j = 25\text{ °C}$  unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	DAMPER		MODULATOR		UNIT
			TYP.	MAX.	TYP.	MAX.	
$t_{rr}$	Reverse recovery time	$I_F = 1\text{ A}$ ; $V_R \geq 30\text{ V}$ ; $-di_F/dt = 50\text{ A}/\mu\text{s}$	200	300	125	145	ns
$Q_s$	Reverse recovery charge	$2\text{ A}, 30\text{ V}, 20\text{ A}/\mu\text{s}$	1.2	2.0	0.5	0.7	$\mu\text{C}$
$V_{fr}$	Peak forward recovery voltage	$I_F = 6.5\text{ A}$ ; $di_F/dt = 50\text{ A}/\mu\text{s}$	27	-	18.0	-	V

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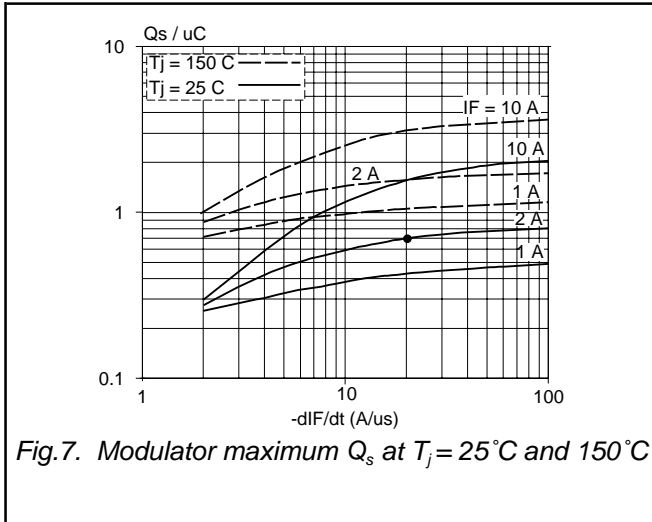


Fig.7. Modulator maximum  $Q_s$  at  $T_j = 25^\circ\text{C}$  and  $150^\circ\text{C}$

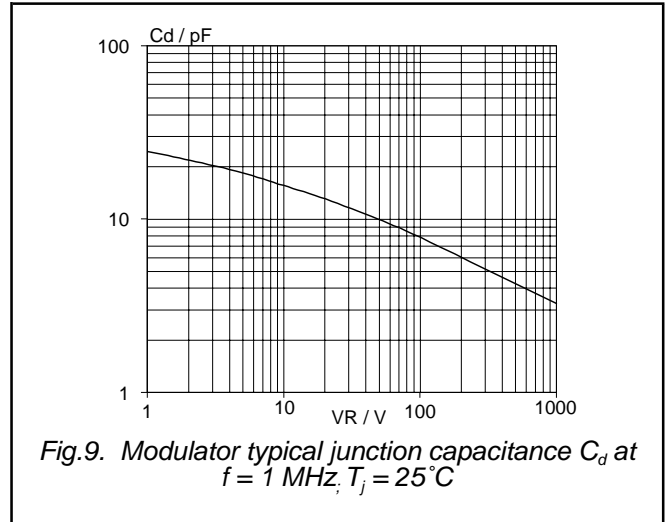


Fig.9. Modulator typical junction capacitance  $C_d$  at  $f = 1\text{ MHz}$ ,  $T_j = 25^\circ\text{C}$

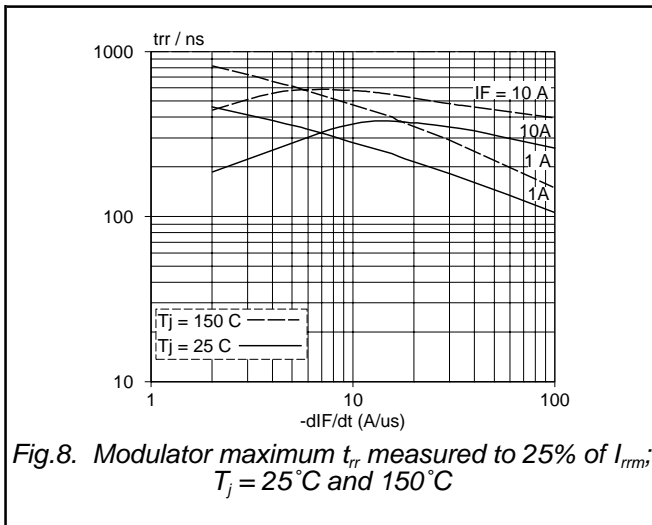


Fig.8. Modulator maximum  $t_{rr}$ , measured to 25% of  $I_{rsm}$ ;  $T_j = 25^\circ\text{C}$  and  $150^\circ\text{C}$

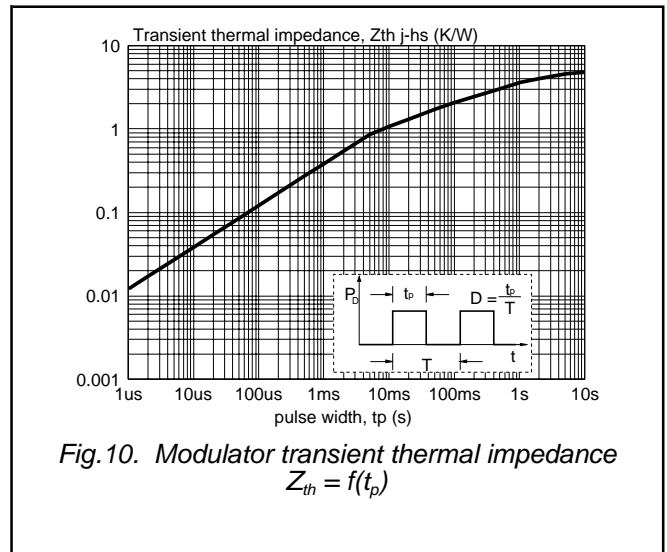
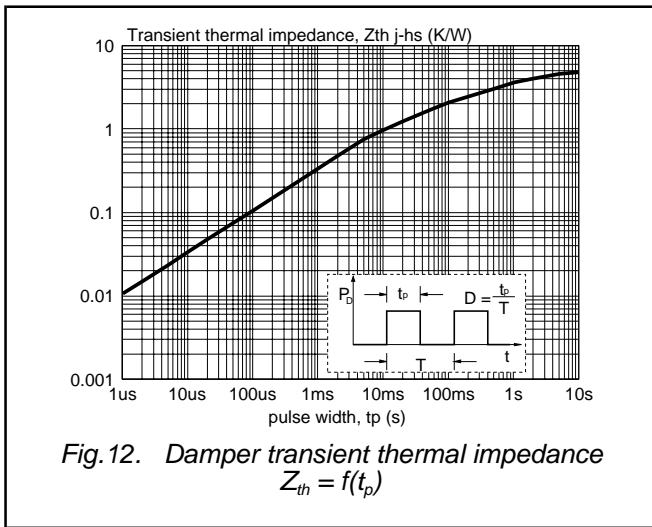
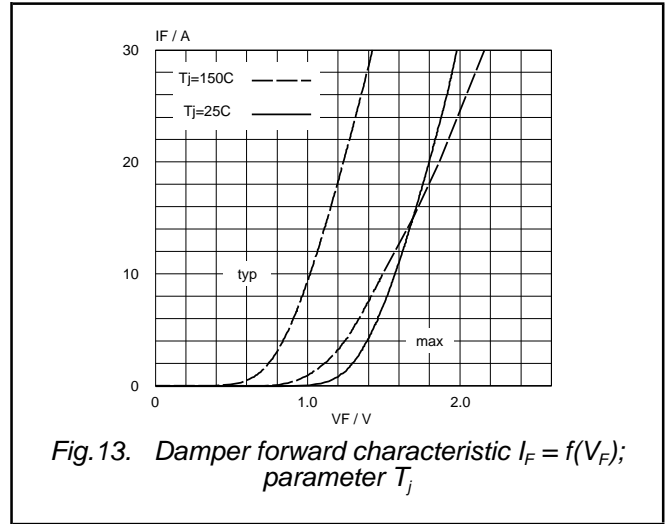
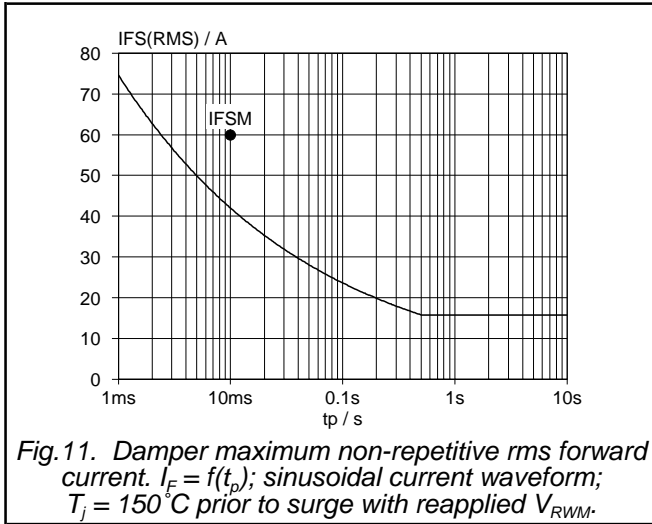


Fig.10. Modulator transient thermal impedance  $Z_{th} = f(t_p)$

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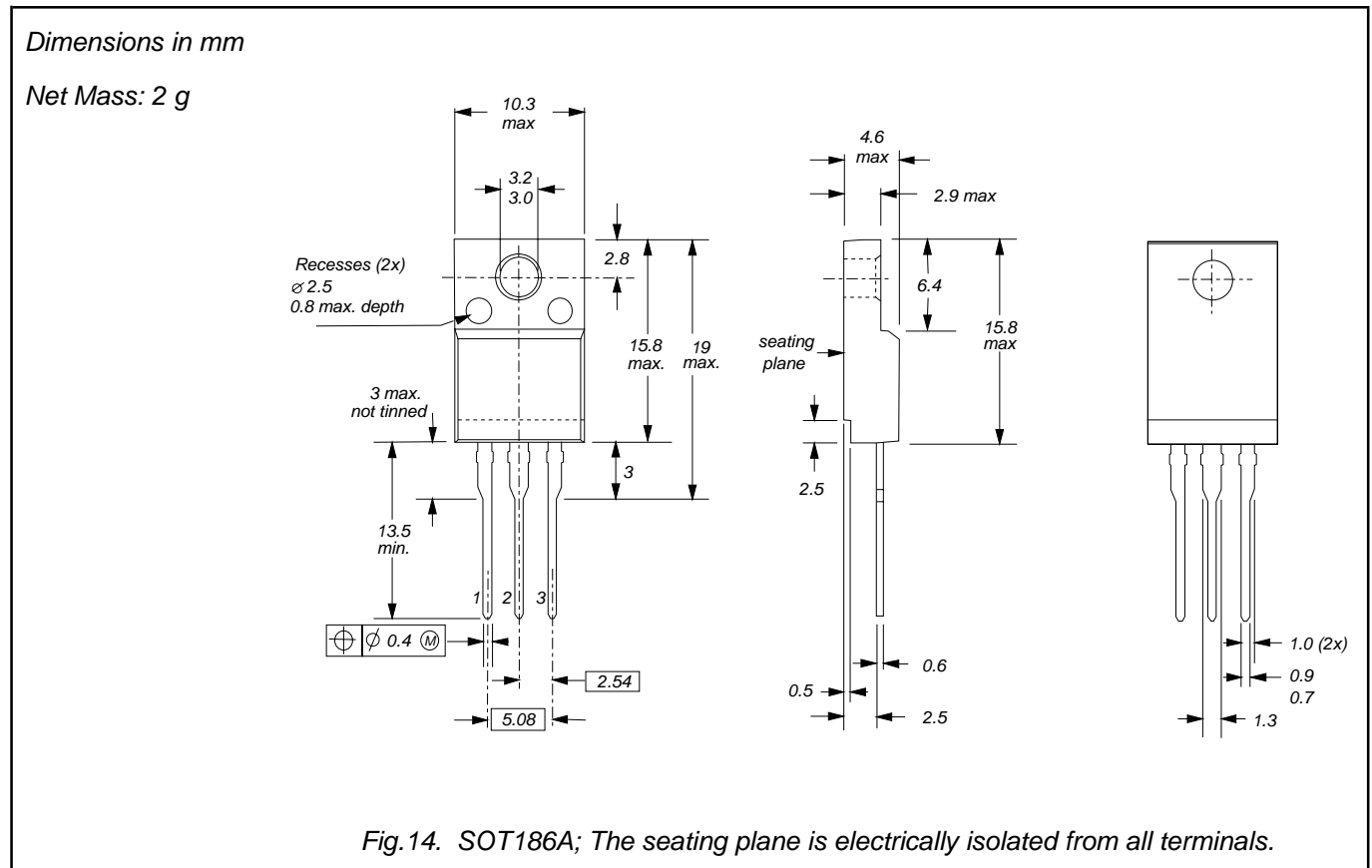
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**MECHANICAL DATA**



**Notes**

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

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## DEFINITIONS

<b>Data sheet status</b>	
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.
<b>Limiting values</b>	
Limiting values are given in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of this specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	
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