

# Silicon Diode

## **BYT12P/600A**

600V / 25A

# DATASHEET

OEM – Temic

Source: Temic Datasheet Paperware

## BYT 12P /600A/800A Fast Recovery Silicon Power Diode

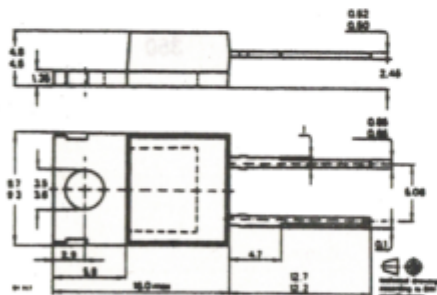
**Application:**

- Fast switched mode power supplies
- Freewheeling diodes and snubber diodes  
in motor control circuits

**Features:**

- Multiple diffusion
- Mesa glasspassivated
- Low switch on power losses
- Good soft recovery behavior
- Fast forward recovery time
- Fast reverse recovery time
- Low reverse current
- Very low turn on  
transient peak voltage
- Very good reverse current  
stability at high temperature
- Low thermal resistance

### Dimensions in mm:



Cathode connected  
with metallic surface



### Absolute maximum ratings

Reverse voltage,			
Repetitive peak reverse voltage	$V_R = V_{RRM}$	1000	V
Surge forward current			
$t_p = 10$ ms	$I_{FSM}$	150	A
Repetitive peak forward current	$I_{FRM}$	25	A
Average forward current	$I_{FAV}$	12	A
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{sig}$	-40... + 150	°C

**Maximum thermal resistances**

Junction case	$R_{thJC}$	2.0	K/W
Junction ambient	$R_{thJA}$	85	K/W

**Characteristics**

$T_J = 25^\circ\text{C}$ , unless otherwise specified		Typ.	Max.
<b>Forward voltage</b>			
$I_F = 12\text{ A}$	$V_F$	1.9	V
$I_F = 12\text{ A}, T_J = 100^\circ\text{C}$	$V_F$	1.8	V
<b>Reverse current</b>			
$V_R = V_{RRM}$	$I_R$	50	$\mu\text{A}$
$V_R = V_{RRM}, T_J = 100^\circ\text{C}$	$I_R$	2.5	mA
<b>Forward recovery time</b>			
$I_F = 12\text{ A}, di_F/dt \leq 50\text{ A}/\mu\text{s}$	$t_{fr}$	350	ns
Turn ON transient peak voltage, Fig.1	$V_{FP}$	4,5	V
<b>Turn OFF switching characteristic Fig.2</b>			
$I_F = 12\text{ A}, di_F/dt \leq -50\text{ A}/\mu\text{s},$			
$V_{Batt} = 200\text{ V}, T_J = 100^\circ\text{C}$			
Reverse recovery current	$I_{RM}$	6	A
Reverse recovery time	$t_{IRM}$	160	ns
$I_R = 0,25 \times I_{RM}$	$t_{rr}$	180	ns
$I_F = 0.5\text{ A}, I_R = 1\text{ A}, i_R = 0.25\text{ A}$	$t_{rr}$	50	ns

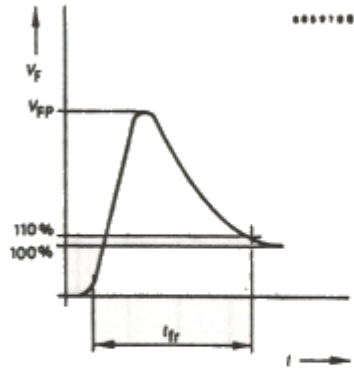


Fig. 1 Turn ON transient peak voltage

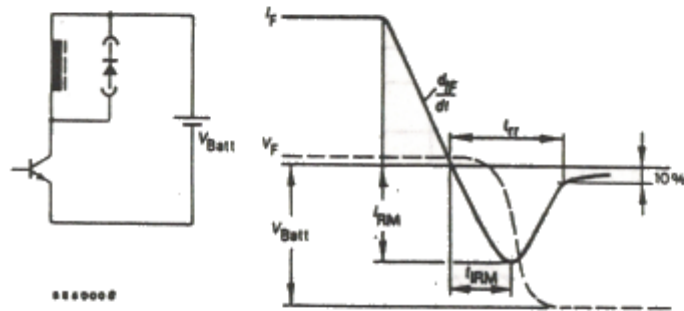
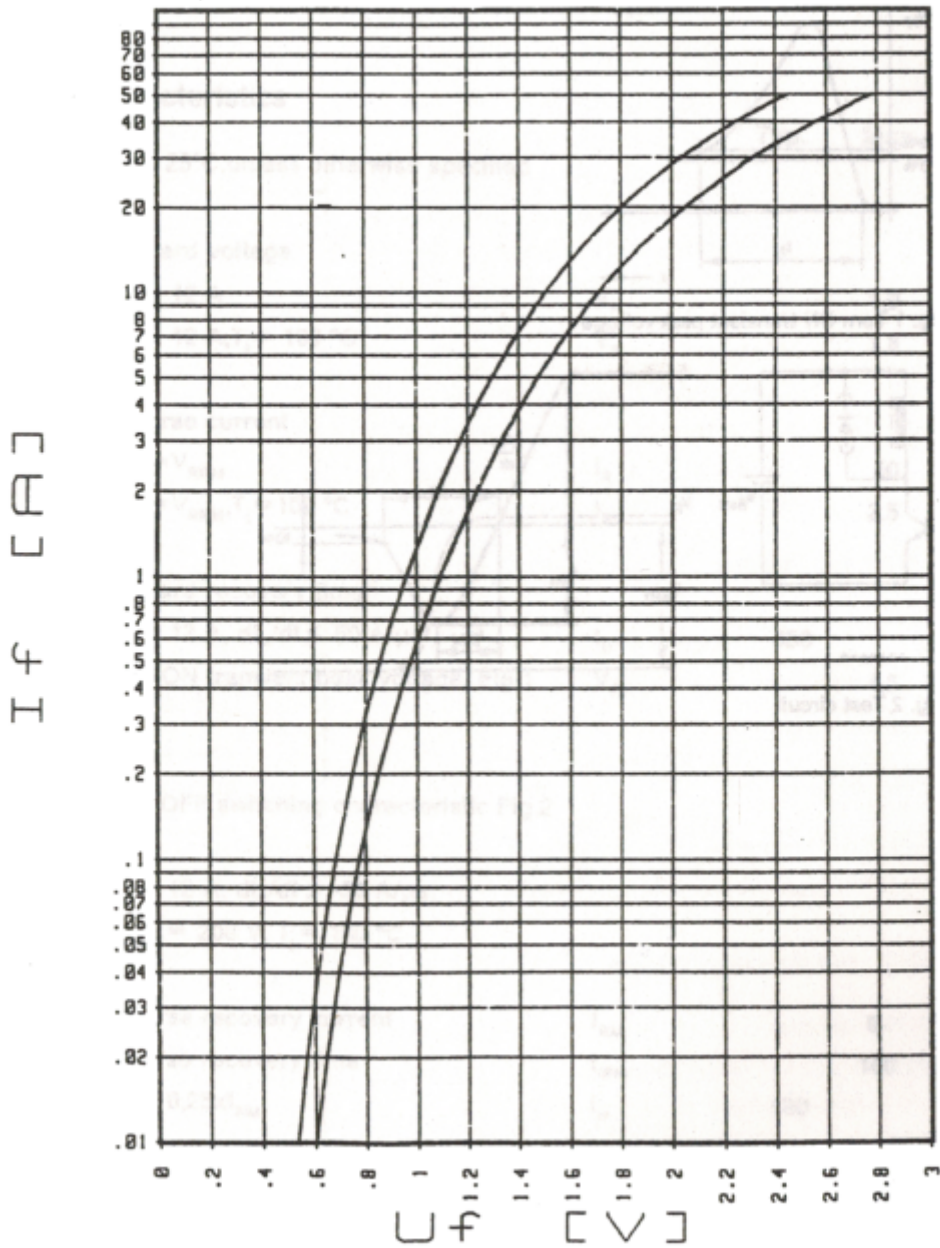
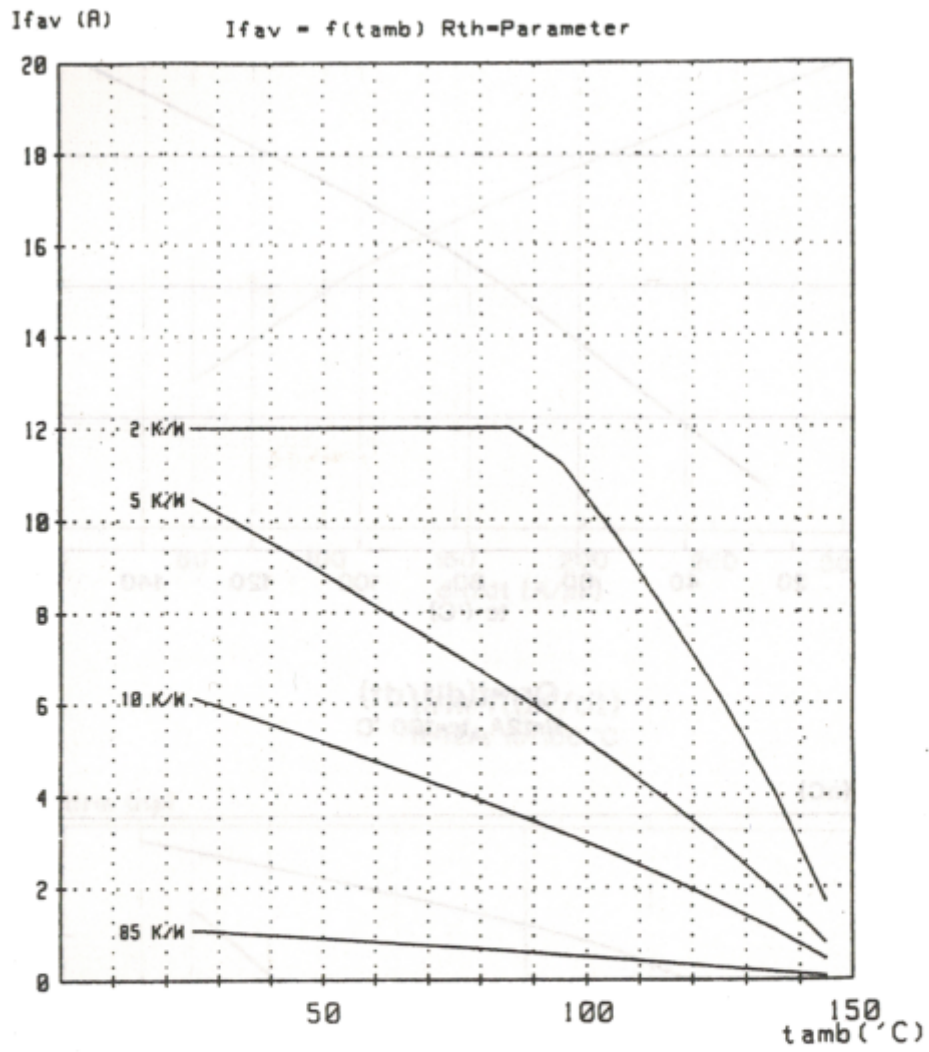


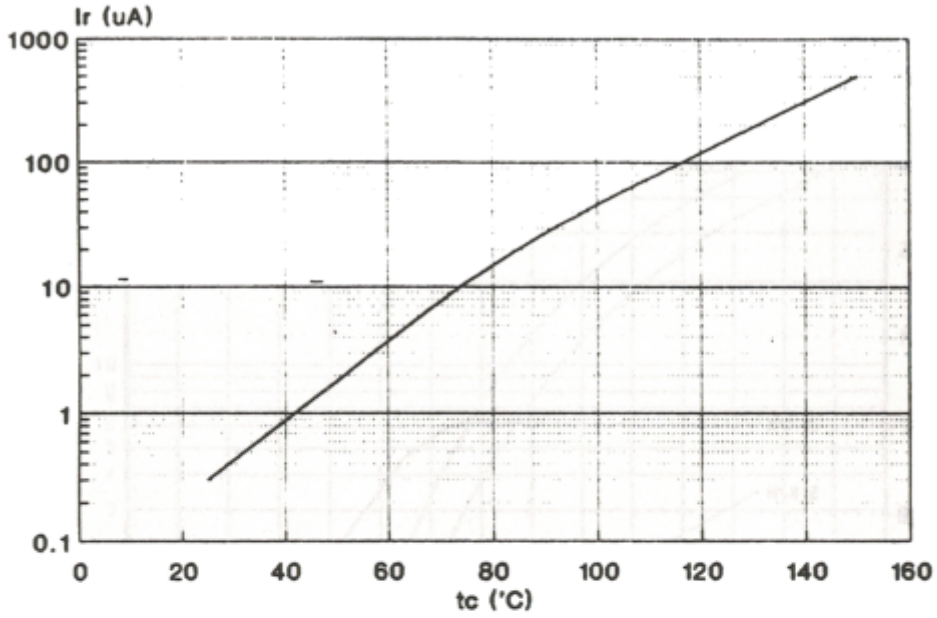
Fig. 2 Test circuit

$$U_f = f(I_f)$$

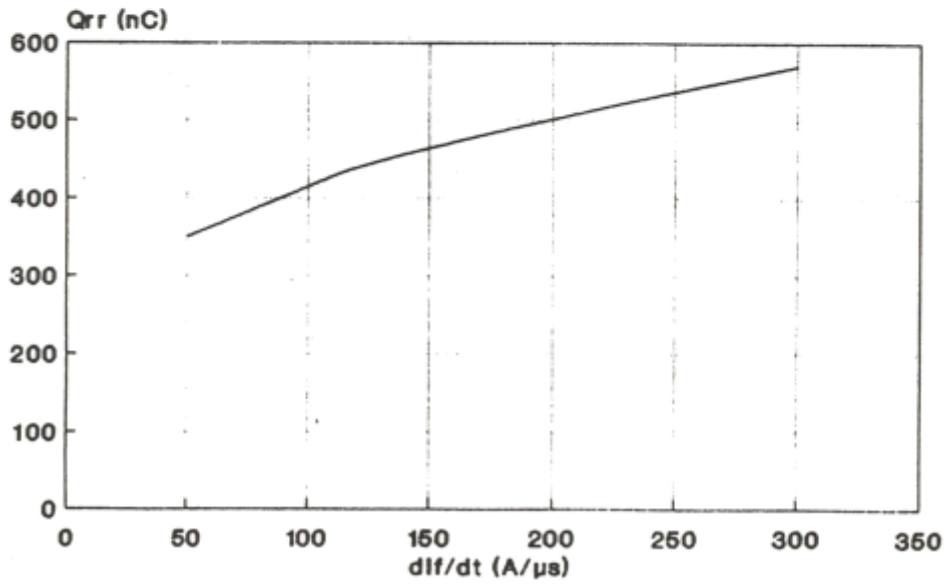




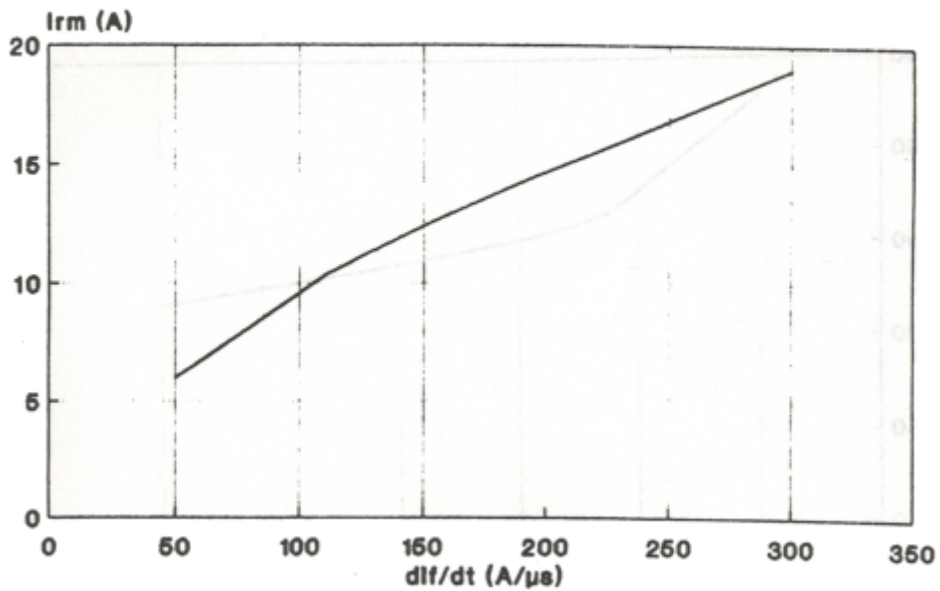
$I_r=f(t_c)$



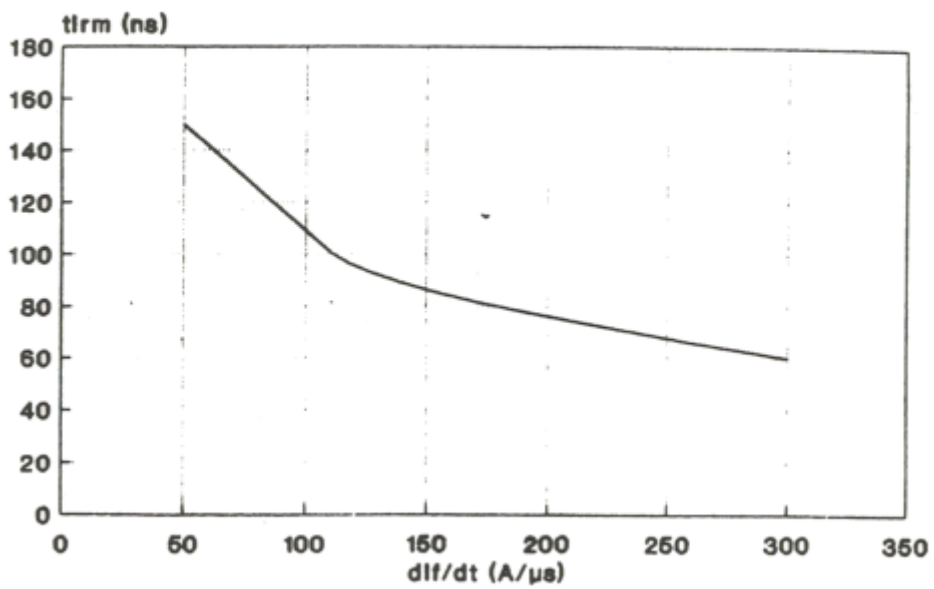
$Q_{rr}=f(dI_f/dt)$   
 $I_f=12A, t_c=100^{\circ}C$



**$I_{rm} = f(dI_f/dt)$**   
 **$I_f = 12A, t_c = 100^\circ C$**

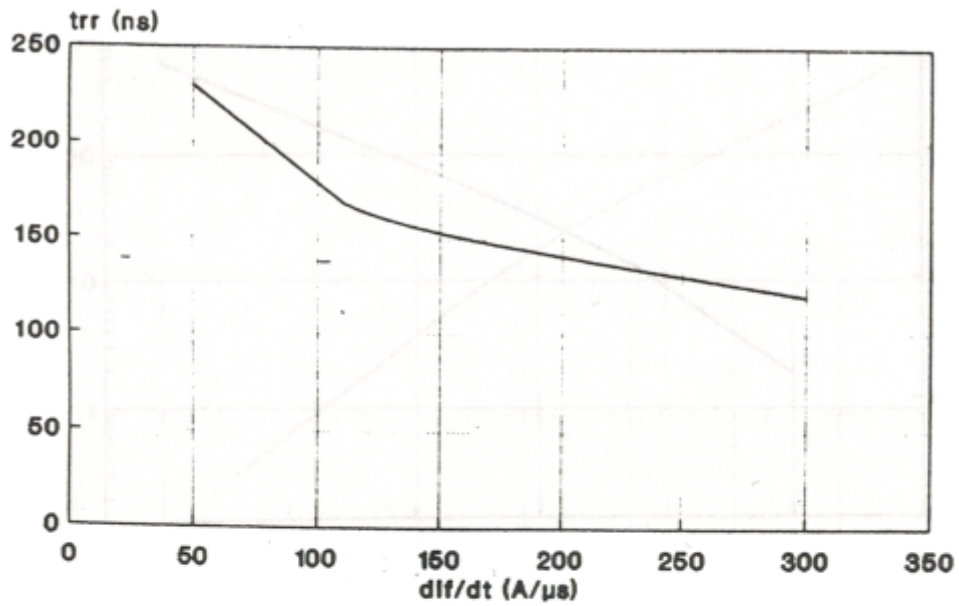


**$t_{irm} = f(dI_f/dt)$**   
 **$I_f = 12A, t_c = 100^\circ C$**





$t_{rr}=f(dI/dt)$   
 $I_f=12A, t_c=100^\circ C$



$Q_{rr}=f(I_f)$   
 $I_f=12A, di/dt=100A/\mu s, t_c=100^\circ C$

