

# Ultra Fast and Soft Recovery Diode

## USR30P6

### Features

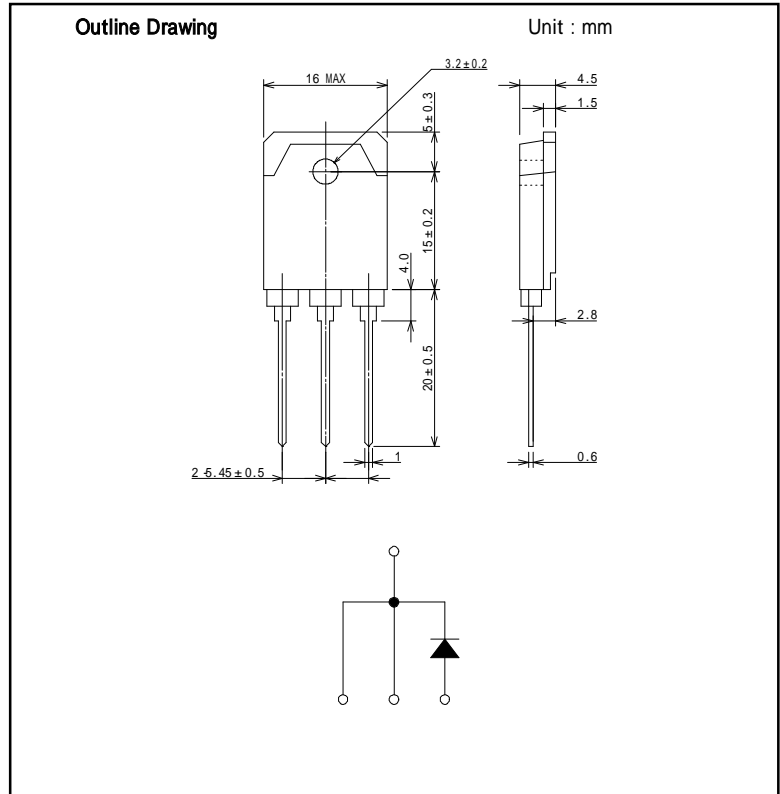
- High speed recovery time (less than 100ns).
- Ultra soft recovery.
- Low forward voltage drop.

### Applications

- High frequency switched mode power supplies.
- Block diode (reverse current) as flywheel.
- Power factor and harmonic correction  
(snubber circuit)

### Structures

- Resin molded and Silicon epitaxial planar diode.
- TO-3P Package
- Weight : 5.2g
- Terminal plating : Sn
- Conforms to RoHS regulations



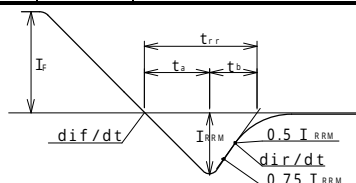
### Absolute Maximum Ratings (Ta=25 )

Items	Symbol	Conditions	Ratings	Unit
Repetitive Peak Reverse Voltage	$V_{RM}$	-	600	V
Average Rectified Forward Current	$I_O$	$T_c=90$ , Half sin wave, Resistive Load	30	A
Peak Forward Surge Current	$I_{FSM}$	$T_j=25$ , 50Hz, Single-phase, Half sin wave, Non-Repetitive	300	A
Operating Junction Temperature	$T_j$	-	-40 ~ +150	
Storage Temperature	$T_{stg}$	-	-40 ~ +150	
Mounting Torque	TOR	-	0.8	N·m

### Electrical Characteristics (Tj=25 )

Items	Symbol	Conditions	TYP.	MAX.	Unit
Forward Voltage Drop	$V_F$	$I_F=30A$	-	1.5	V
Reverse Current	$I_R$	$V_R=600V$	-	200	$\mu A$
Reverse Recovery Time	$t_{rr}$	$I_F=30A, dif/dt=-300/\mu s$	-	100	Ns
Softness Factor ( )	S F	$I_F=30A, dif/dt=-300/\mu s$	0.8	-	-
Terminal resistance	$R_{th(j-c)}$	Junction to Case	-	1.0	/W

( ) Definition of Softness Factor

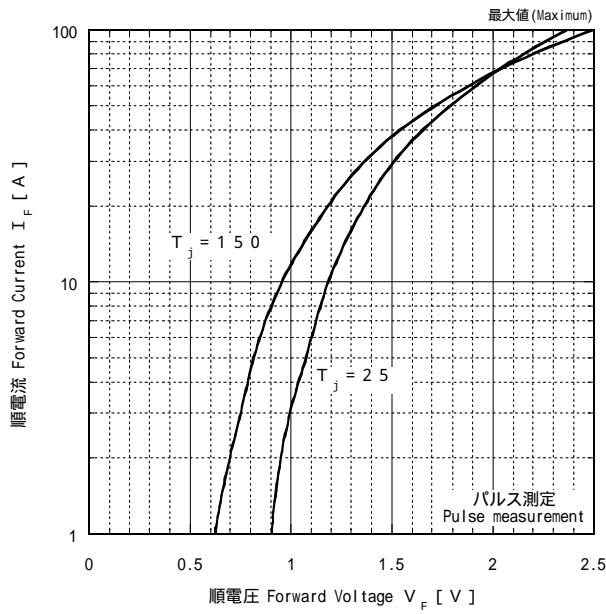


$$\text{ソフトネスファクタ} = \frac{t_b}{t_a}$$

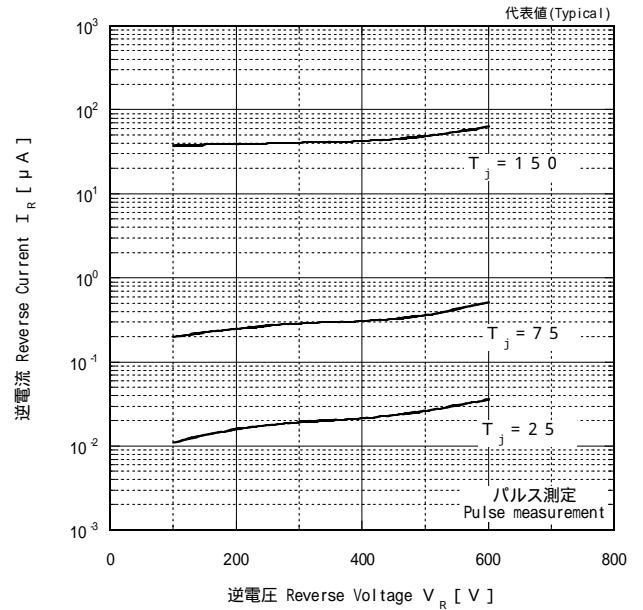
$$\text{Softness Factor}$$

$$d i r / d t \frac{I_{RPM}}{t_b} = \frac{d i f / d t \times t_a}{t_b} = \frac{d i f / d t}{S F}$$

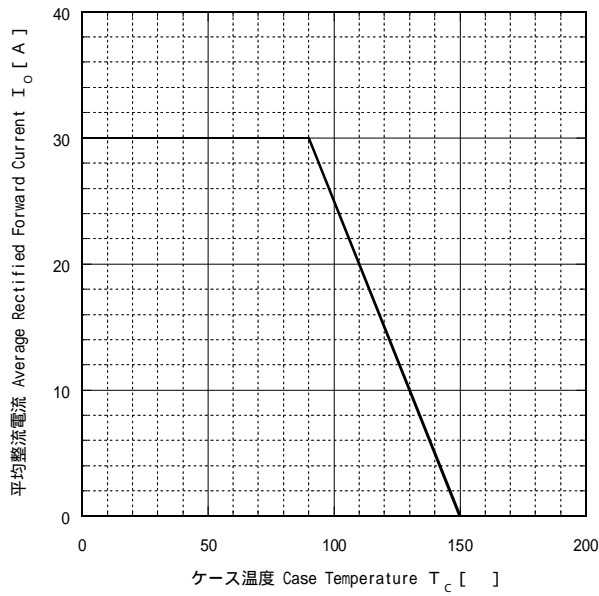
Characteristics Diagrams



FORWARD CHARACTERISTICS



REVERSE CHARACTERISTICS



DERATING CURVE