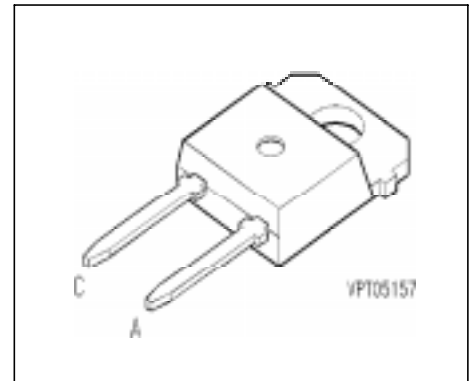


## FRED Diode

- Fast recovery epitaxial diode
- Soft recovery characteristics



Type	$V_{RRM}$	$I_{FRMS}$	$t_{rr}$	Package	Ordering Code
BYP 103	1000V	75A	140ns	TO-218 AD	C67047-A2066-A2

## Maximum Ratings

Parameter	Symbol	Values	Unit
Mean forward current $T_C = 90\text{ °C}, D = 0.5$	$I_{FAV}$	45	A
RMS forward current	$I_{FRMS}$	75	
Surge forward current, sine halfwave, aperiodic $T_j = 100\text{ °C}, f = 50\text{ Hz}$	$I_{FSM}$	180	
Repetitive peak forward current $T_j = 100\text{ °C}, t_p \leq 10\text{ }\mu\text{s}$	$I_{FRM}$	400	
$i^2t$ value $T_j = 100\text{ °C}, t_p = 10\text{ ms}$	$\int i^2 dt$	162	A <sup>2</sup> s
Repetitive peak reverse voltage	$V_{RRM}$	1000	V
Surge peak reverse voltage	$V_{RSM}$	1000	
Power dissipation $T_C = 90\text{ °C}$	$P_{tot}$	115	W
Chip or operating temperature	$T_j$	-40 ... + 150	°C
Storage temperature	$T_{stg}$	-40 ... + 150	
Thermal resistance, chip case	$R_{thJC}$	$\leq 0.5$	K/W
Thermal resistance, chip-ambient	$R_{thJA}$	$\leq 46$	
DIN humidity category, DIN 40 040	-	E	-
IEC climatic category, DIN IEC 68-1	-	40 / 150 / 56	-

**Electrical Characteristics**, at  $T_j = 25\text{ °C}$ , unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

**Static Characteristics**

Forward voltage drop	$V_F$				V
$I_F = 30\text{ A}, T_j = 25\text{ °C}$		-	1.7	-	
$I_F = 45\text{ A}, T_j = 25\text{ °C}$		-	1.9	2.35	
$I_F = 30\text{ A}, T_j = 100\text{ °C}$		-	1.3	-	
$I_F = 45\text{ A}, T_j = 100\text{ °C}$		-	1.5	-	
Reverse current	$I_R$				mA
$V_R = 1000\text{ V}, T_j = 25\text{ °C}$		-	0.01	0.25	
$V_R = 1000\text{ V}, T_j = 100\text{ °C}$		-	0.05	-	
$V_R = 1000\text{ V}, T_j = 150\text{ °C}$		-	0.15	-	

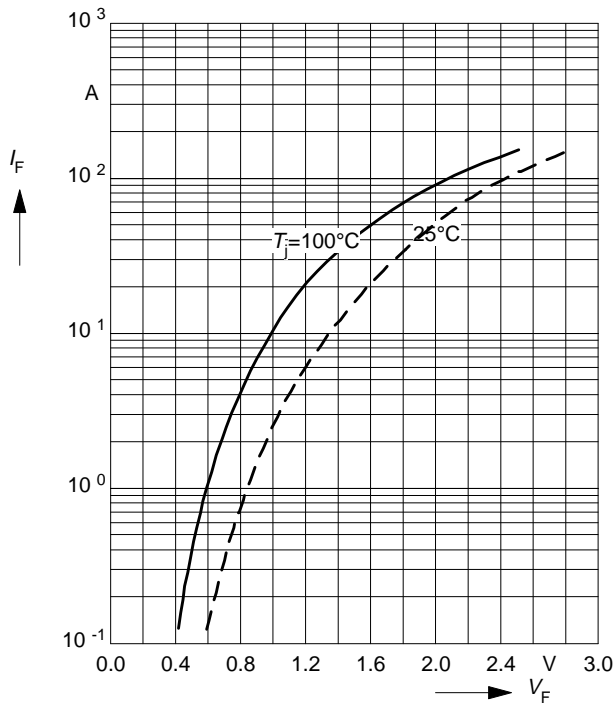
**AC Characteristics**

Reverse recovery charge	$Q_{rr}$				$\mu\text{C}$
$I_F = 45\text{ A}, V_{CC} = 300\text{ V}, di_F/dt = -1000\text{ A}/\mu\text{s}$ $T_j = 100\text{ °C}$		-	6	-	
Peak reverse recovery current	$I_{RRM}$				A
$I_F = 45\text{ A}, V_{CC} = 300\text{ V}, di_F/dt = -1000\text{ A}/\mu\text{s}$ $T_j = 100\text{ °C}$		-	60	-	
Reverse recovery time	$t_{rr}$				ns
$I_F = 45\text{ A}, V_{CC} = 300\text{ V}, di_F/dt = -1000\text{ A}/\mu\text{s}$ $T_j = 100\text{ °C}$		-	140	-	
Storage time	$t_S$				
$I_F = 45\text{ A}, V_{CC} = 300\text{ V}, di_F/dt = -1000\text{ A}/\mu\text{s}$ $T_j = 100\text{ °C}$		-	70	-	
Softfaktor	S				-
$I_F = 45\text{ A}, V_{CC} = 300\text{ V}, di_F/dt = -1000\text{ A}/\mu\text{s}$ $T_j = 100\text{ °C}$		-	1	-	

### Typ. forward characteristics

$$I_F = f(V_F)$$

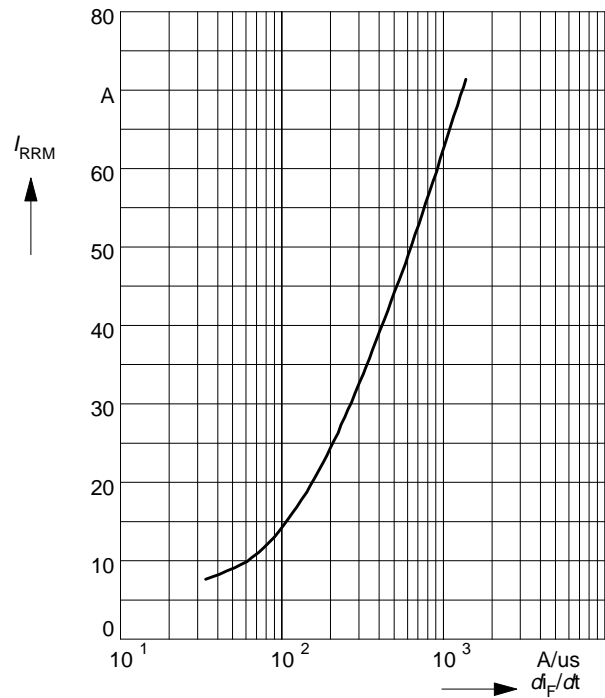
parameter:  $T_j$



### Typ. reverse current

$$I_{RRM} = f(dI_F / dt)$$

parameter:  $V_{CC} = 300\text{ V}, I_F = 45\text{ A}, T_j = 100^\circ\text{C}$



### Typ. reverse recovery charge

$$Q_{rr} = f(dI_F / dt)$$

parameter:  $V_{CC} = 300\text{ V}, I_F = 45\text{ A}, T_j = 100^\circ\text{C}$

