

Silicon Switching Diode

- For high-speed switching applications

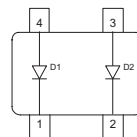
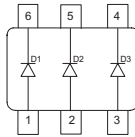
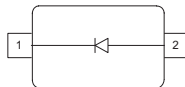
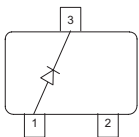


BAS16
BAS16W

BAS16-02L
BAS16-02V
BAS16-02W
BAS16-03W

BAS16S
BAS16U

BAS16-07L4



Type	Package	Configuration	Marking
BAS16	SOT23	single	A6s
BAS16-02L*	TSLP-2-1	single, leadless	A6
BAS16-02V	SC79	single	6
BAS16-02W	SCD80	single	A6
BAS16-03W	SOD323	single	B
BAS16-07L4*	TSLP-4-4	parallel pair, leadless	6A
BAS16S	SOT363	parallel triple	A6s
BAS16U	SC74	parallel triple	A6s
BAS16W	SOT323	single	A6s

* Preliminary Data

Maximum Ratings at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	80	V
Peak reverse voltage	V_{RM}	85	
Forward current	I_F		mA
BAS16		250	
BAS16-02L, -07L4		200	
BAS16-02V, -02W		200	
BAS16-03W		250	
BAS16S		200	
BAS16U		200	
BAS16W		250	
Non-repetitive peak surge forward current	I_{FSM}		A
$t = 1 \mu\text{s}$, BAS16/ S/ U/ W/ -03W		4.5	
$t = 1 \mu\text{s}$, BAS16-02L/ -02V/ -02W/ -07L4		2.5	
$t = 1 \text{s}$		0.5	
Total power dissipation	P_{tot}		mW
BAS16, $T_S \leq 54^\circ\text{C}$		370	
BAS16-02L, -07L4, $T_S \leq 130^\circ\text{C}$		250	
BAS16-02V, -02W, $T_S \leq 120^\circ\text{C}$		250	
BAS16-03W, $T_S \leq 116^\circ\text{C}$		250	
BAS16S, $T_S \leq 85^\circ\text{C}$		250	
BAS16U, $T_S \leq 113^\circ\text{C}$		250	
BAS16W, $T_S \leq 119^\circ\text{C}$		250	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾	R_{thJS}		K/W
BAS16, BAS16S		≤ 260	
BAS16-02L, -07L4		≤ 80	
BAS16-02V, -02W		≤ 120	
BAS16-03W		≤ 135	
BAS16U		≤ 150	
BAS16W		≤ 125	

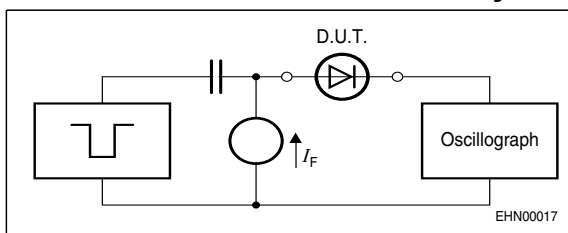
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Breakdown voltage $I_{(BR)} = 100 \mu A$	$V_{(BR)}$	85	-	-	V
Reverse current $V_R = 75 V$ $V_R = 25 V, T_A = 150\text{ }^{\circ}C$ $V_R = 75 V, T_A = 150\text{ }^{\circ}C$	I_R	- - -	- - -	0.1 30 50	μA
Forward voltage $I_F = 1 mA$ $I_F = 10 mA$ $I_F = 50 mA$ $I_F = 100 mA$ $I_F = 150 mA$	V_F	- - - - -	- - - - -	715 855 1000 1200 1250	mV
Forward recovery voltage $I_F = 10 mA, t_P = 20 ns$	V_{fr}	-	-	1.75	V

¹⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Diode capacitance $V_R = 0\text{ V}$, $f = 1\text{ MHz}$	C_T	-	-	2	pF
Reverse recovery time $I_F = 10\text{ mA}$, $I_R = 10\text{ mA}$, measured at $I_R = 1\text{ mA}$, $R_L = 100\text{ }\Omega$	t_{rr}	-	-	4	ns

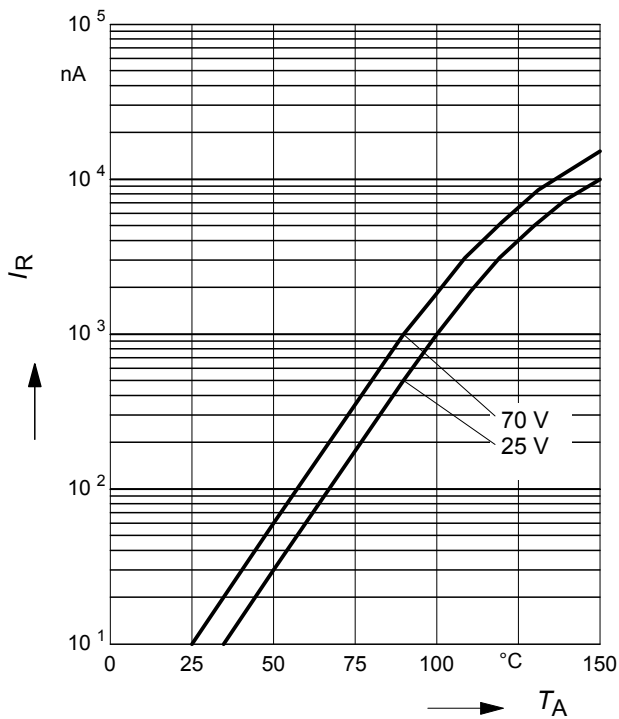
Test circuit for reverse recovery time


Pulse generator: $t_p = 100\text{ ns}$, $D = 0.05$, $t_r = 0.6\text{ ns}$,
 $R_i = 50\ \Omega$

Oscilloscope: $R = 50\ \Omega$, $t_r = 0.35\text{ ns}$, $C = 0.05\text{ pF}$

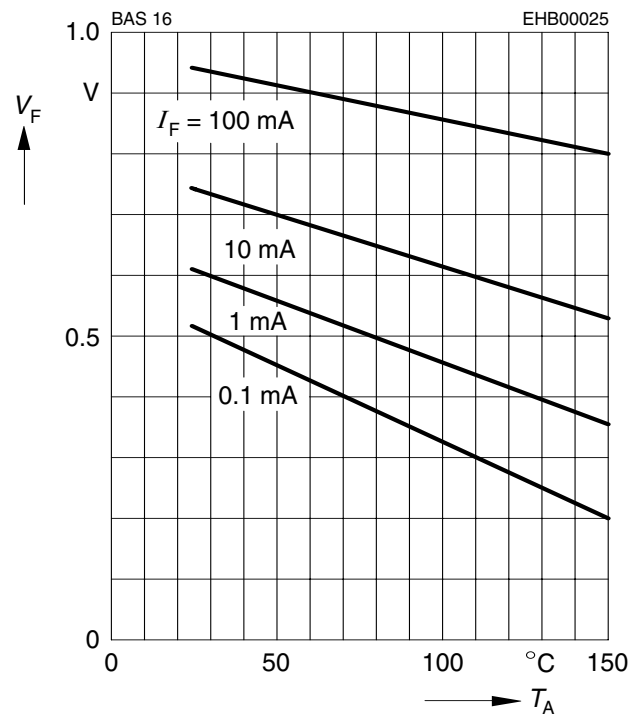
Reverse current $I_R = f(T_A)$

V_R = Parameter



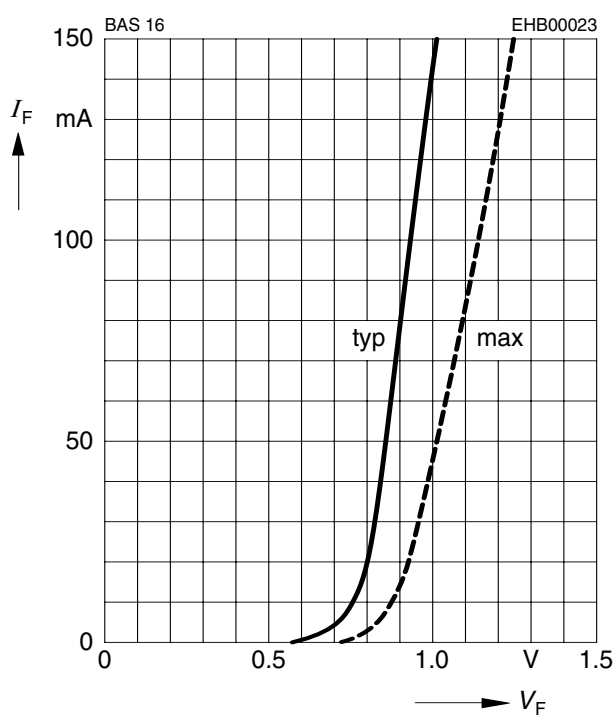
Forward Voltage $V_F = f(T_A)$

I_F = Parameter



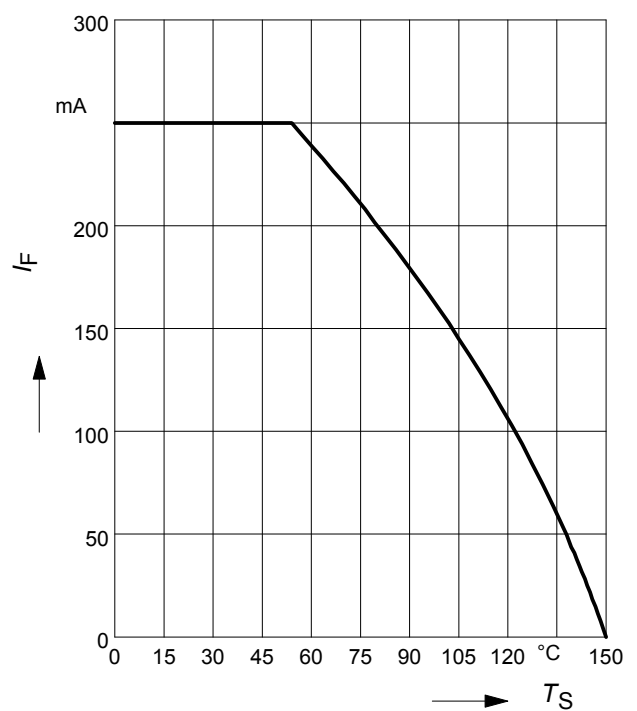
Forward current $I_F = f(V_F)$

$T_A = 25^\circ\text{C}$



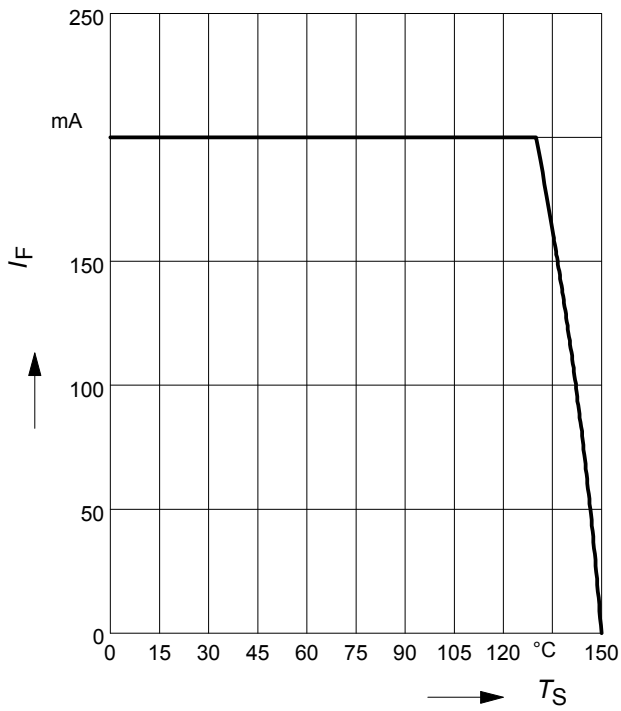
Forward current $I_F = f(T_S)$

BAS16



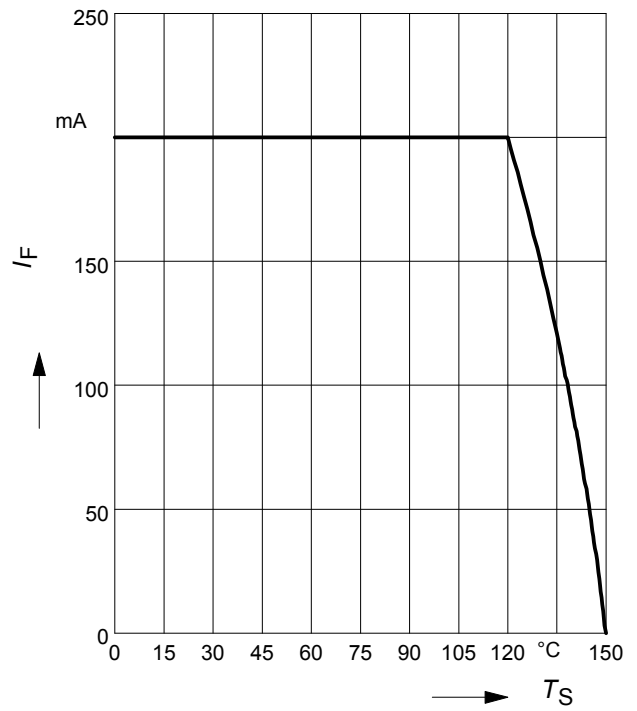
Forward current $I_F = f(T_S)$

BAS16-02L, -07L4



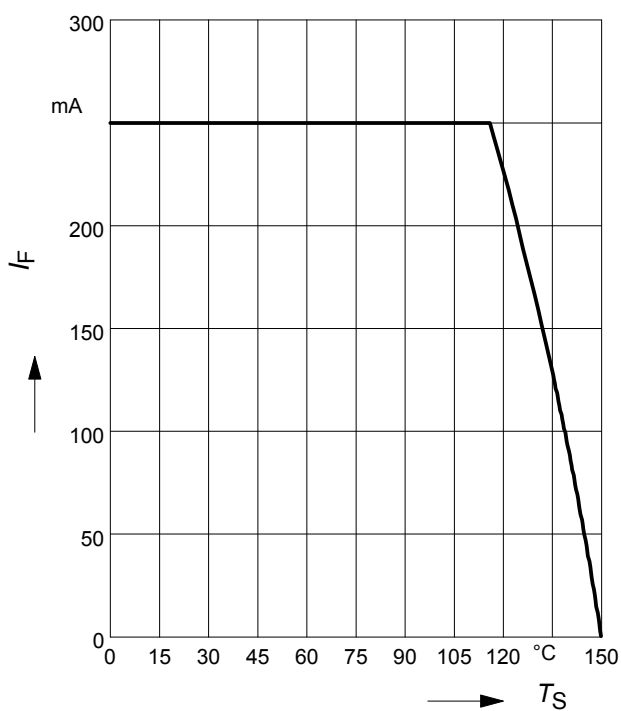
Forward current $I_F = f(T_S)$

BAS16-02V, -02W



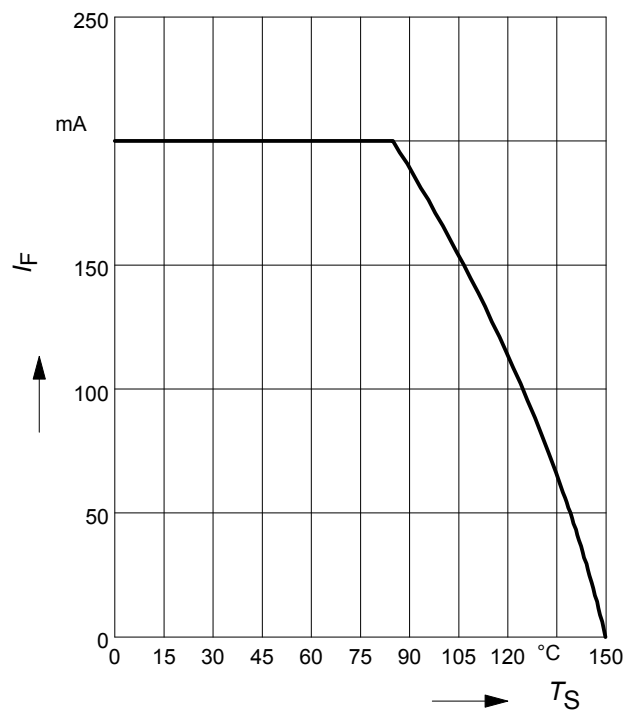
Forward current $I_F = f(T_S)$

BAS16-03W



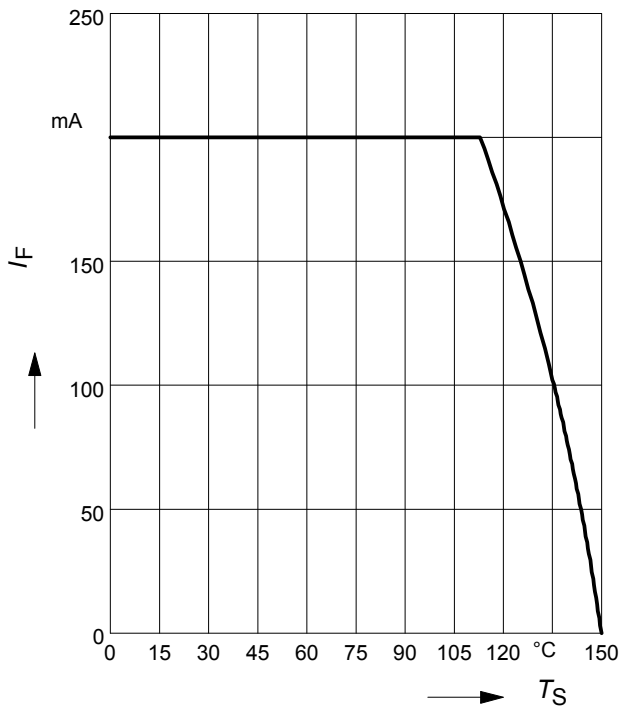
Forward current $I_F = f(T_S)$

BAS16S



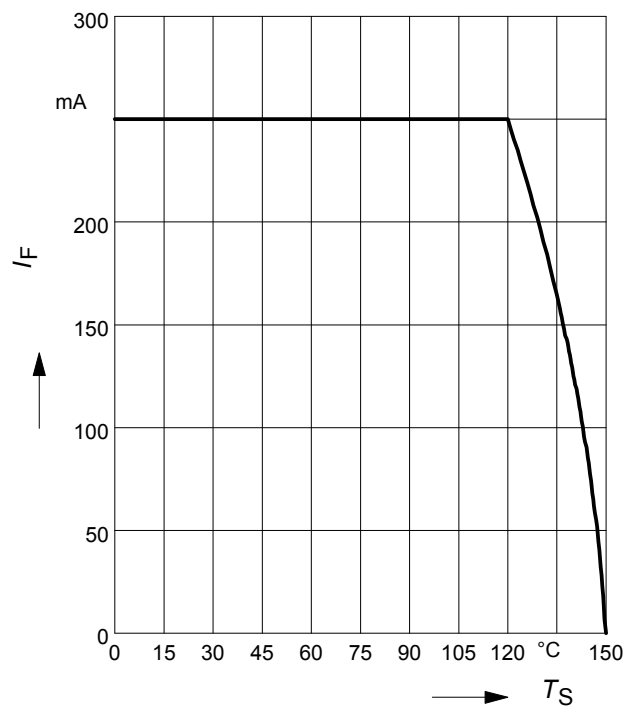
Forward current $I_F = f(T_S)$

BAS16U



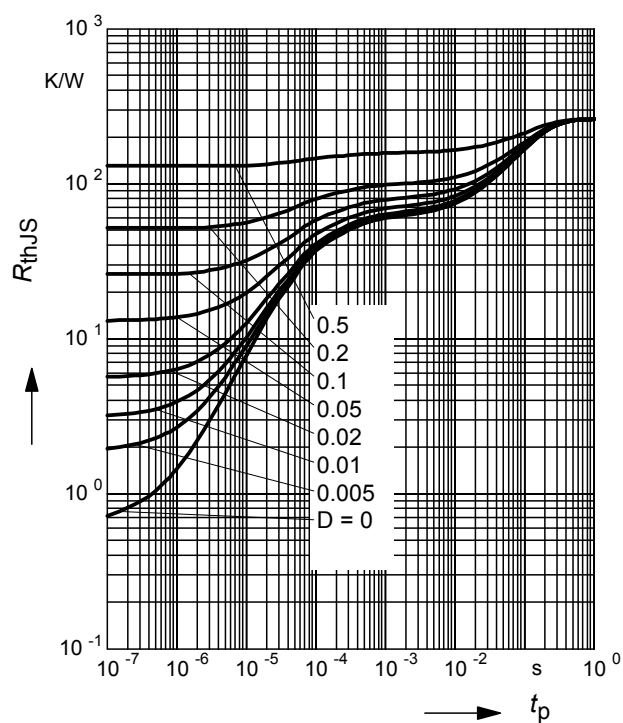
Forward current $I_F = f(T_S)$

BAS16W



Permissible Puls Load $R_{thJS} = f(t_p)$

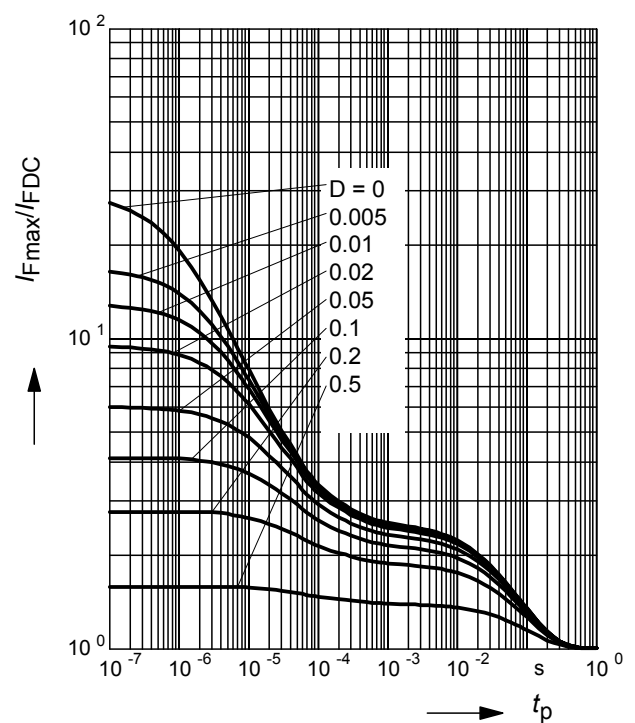
BAS16



Permissible Pulse Load

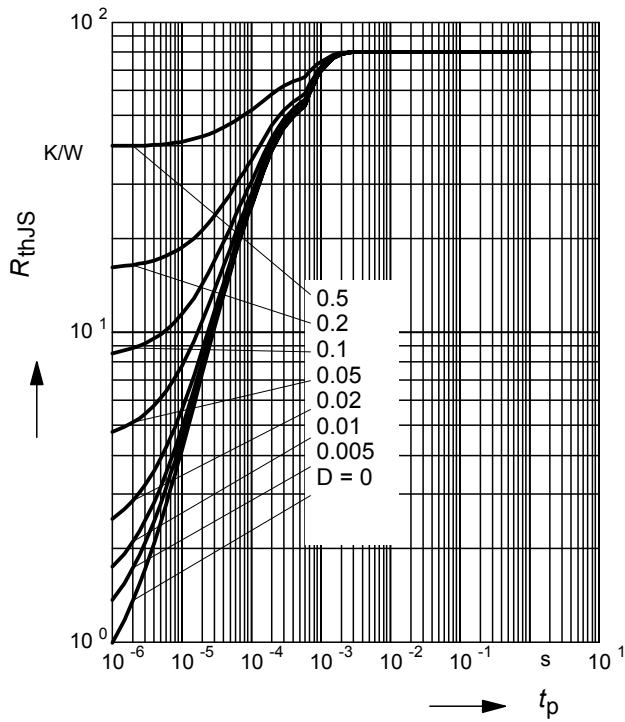
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAS16



Permissible Puls Load $R_{thJS} = f(t_p)$

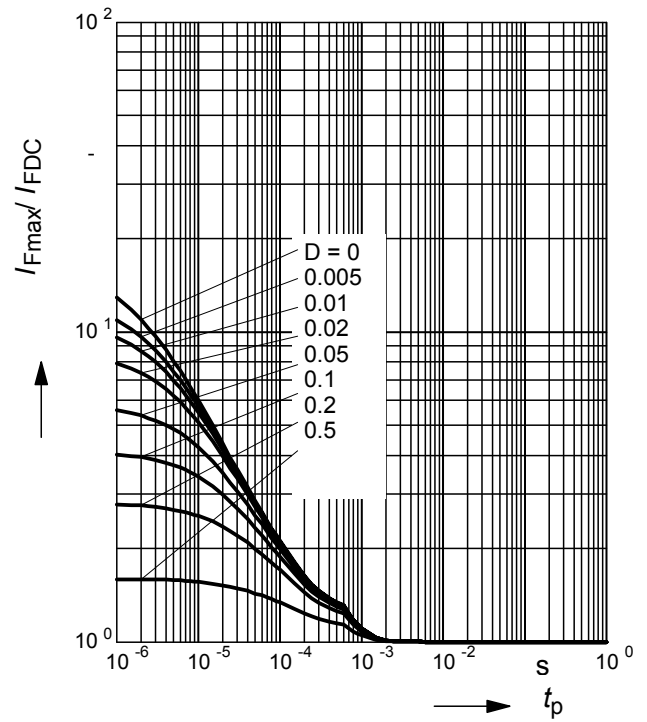
BAS16-02L, -07L4



Permissible Pulse Load

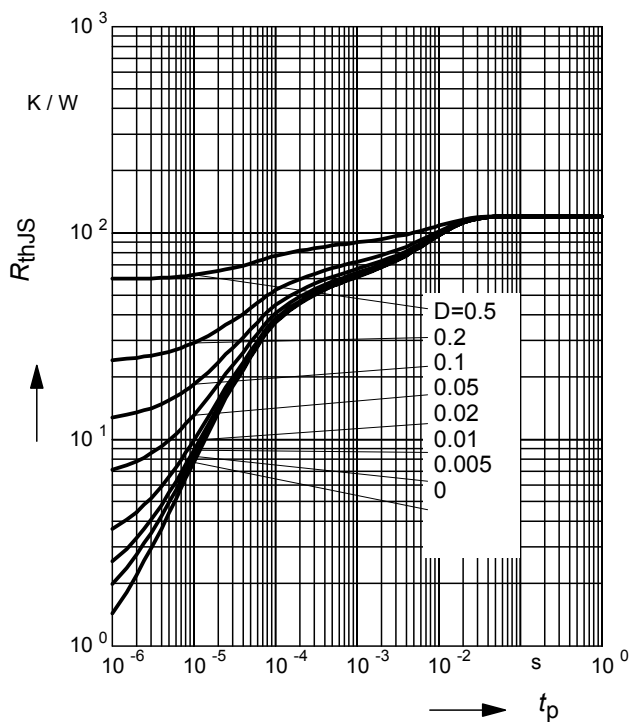
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS16-02L, -07L4



Permissible Puls Load $R_{thJS} = f(t_p)$

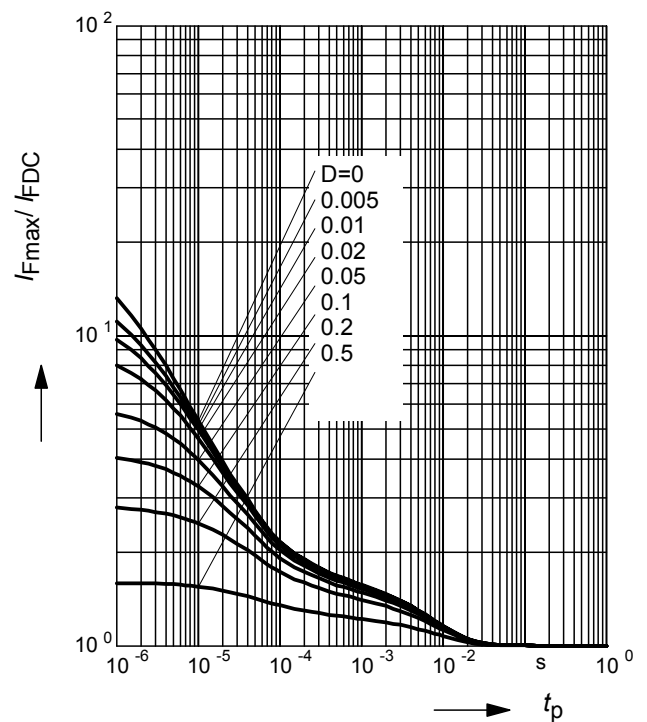
BAS16-02V, -02W



Permissible Pulse Load

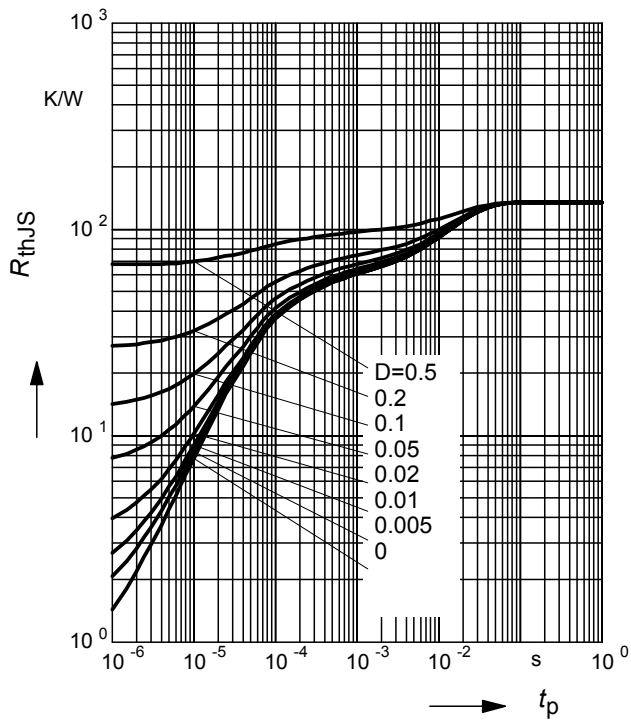
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS16-02V, -02W



Permissible Puls Load $R_{thJS} = f(t_p)$

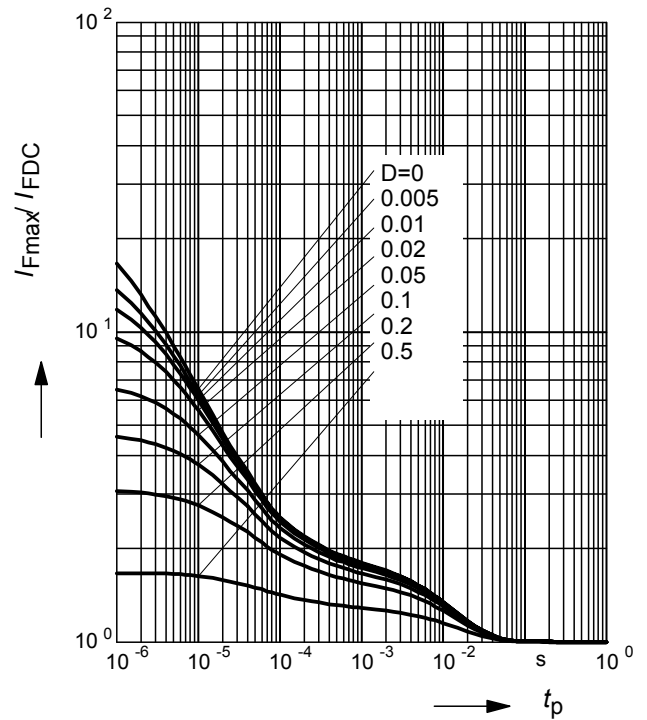
BAS16-03W



Permissible Pulse Load

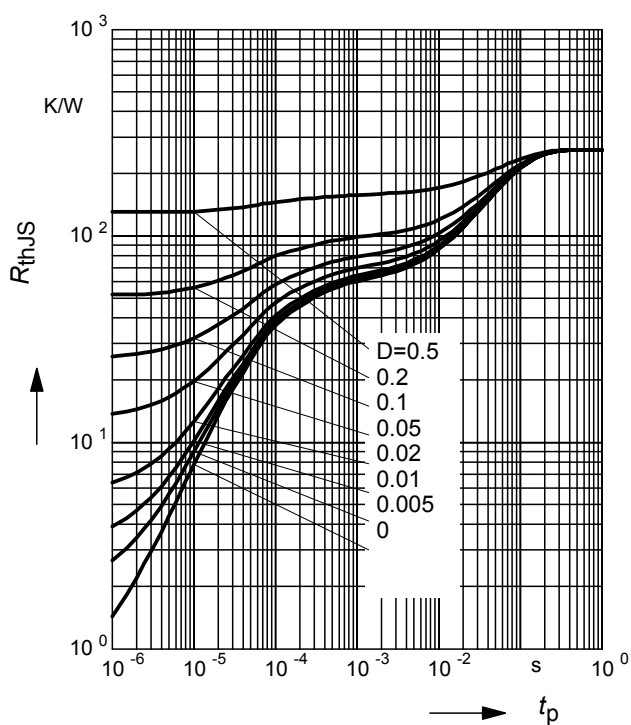
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAS16-03W



Permissible Puls Load $R_{thJS} = f(t_p)$

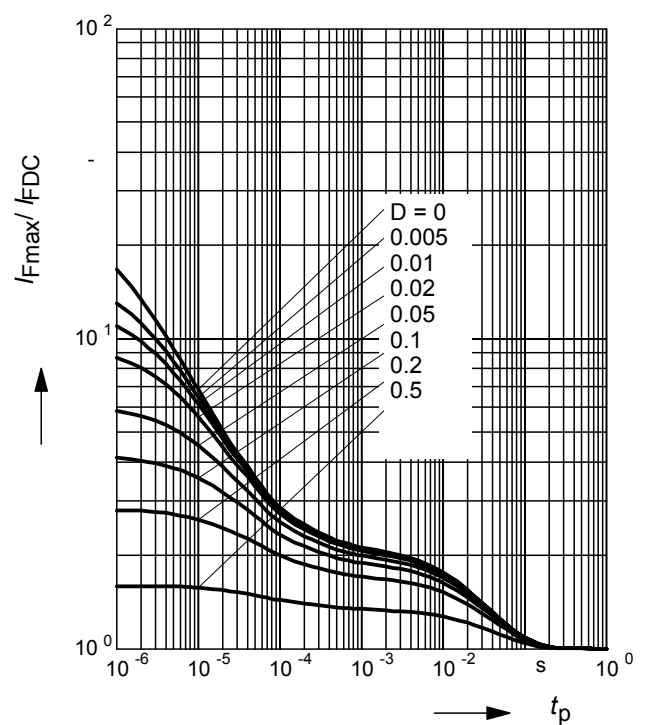
BAS16S



Permissible Pulse Load

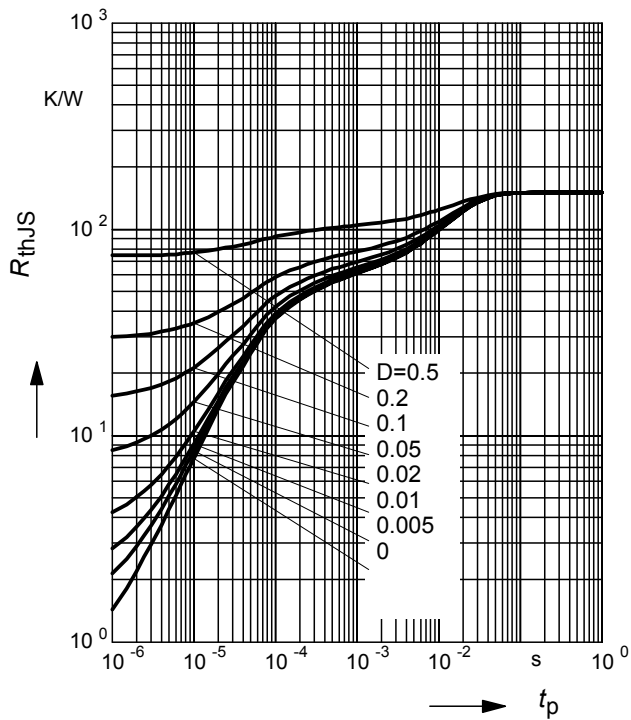
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAS16S



Permissible Puls Load $R_{thJS} = f(t_p)$

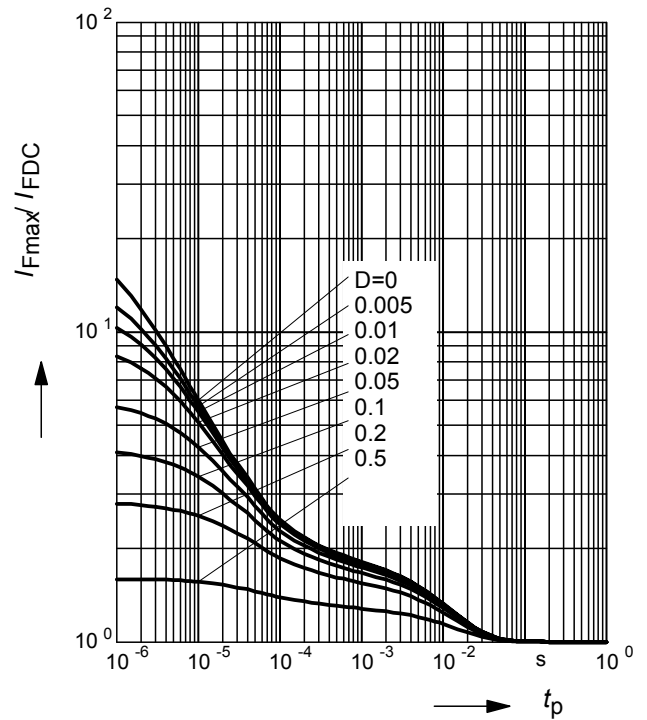
BAS16U



Permissible Pulse Load

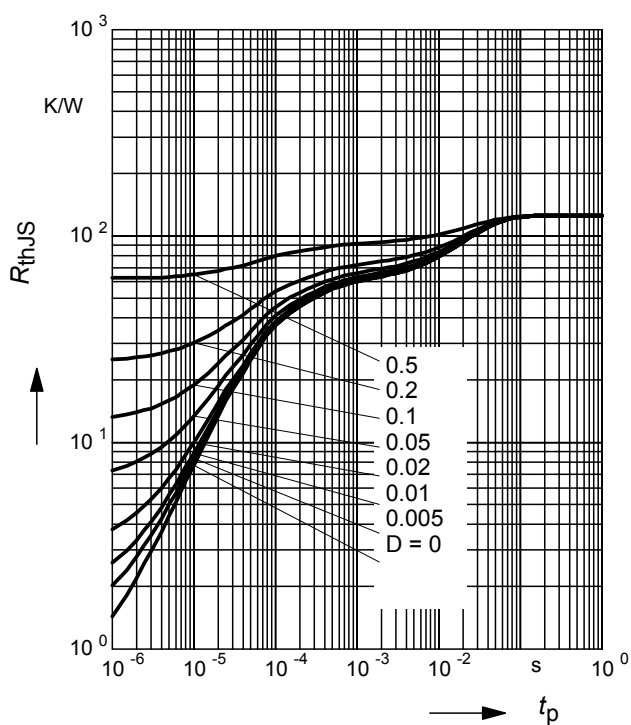
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS16U



Permissible Puls Load $R_{thJS} = f(t_p)$

BAS16W



Permissible Pulse Load

$I_{Fmax}/I_{FDC} = f(t_p)$

BAS16W

