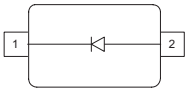


Silicon Schottky Diode

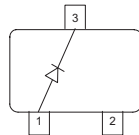
- General-purpose diode for high-speed switching
- Circuit protection
- Voltage clamping
- High-level detecting and mixing



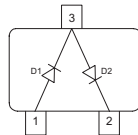
BAS140W
BAS40-02L



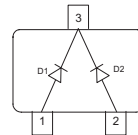
BAS40



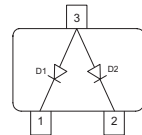
BAS40-04



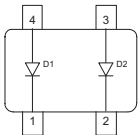
BAS40-05
BAS40-05W



BAS40-06
BAS40-06W



BAS40-07
BAS40-07W



ESD: Electrostatic discharge sensitive device, observe handling precaution!

Type	Package	Configuration	L_S (nH)	Marking
BAS140W	SOD323	single	1.8	white 4
BAS40	SOT23	single	1.8	43s
BAS40-02L*	TSLP-2-1	single, leadless	0.4	FF
BAS40-04	SOT23	series	1.8	44s
BAS40-05	SOT23	common cathode	1.8	45s
BAS40-05W	SOT323	common cathode	1.4	45s
BAS40-06	SOT23	common anode	1.8	46s
BAS40-06W	SOT323	common anode	1.4	46s
BAS40-07	SOT143	parallel pair	2	47s
BAS40-07W	SOT343	parallel pair	1.8	47s

*Preliminary

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	40	V
Forward current	I_F	120	mA
Non-repetitive peak surge forward current $t \leq 10\text{ms}$	I_{FSM}	200	
Total power dissipation BAS140W, $T_S \leq 113^\circ\text{C}$ BAS40, BAS40-07, $T_S \leq 81^\circ\text{C}$ BAS40-02L, $T_S \leq 127^\circ\text{C}$ BAS40-04, BAS40-06, $T_S \leq 56^\circ\text{C}$ BAS40-06W, $T_S \leq 106^\circ\text{C}$ BAS40-05, $T_S \leq 31^\circ\text{C}$ BAS40-05W, $T_S \leq 98^\circ\text{C}$ BAS40-07W, $T_S \leq 118^\circ\text{C}$	P_{tot}	250 250 250 250 250 250 250 250	mW
Junction temperature	T_j	150	
Operating temperature range	T_{op}	-55 ... 125	
Storage temperature	T_{stg}	-55 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾ BAS140W BAS40, BAS40-07 BAS40-02L BAS40-04, BAS40-06 BAS40-06W BAS40-05 BAS40-05W BAS40-07W	R_{thJS}	≤ 150 ≤ 275 ≤ 90 ≤ 375 ≤ 175 ≤ 475 ≤ 205 ≤ 125	K/W

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

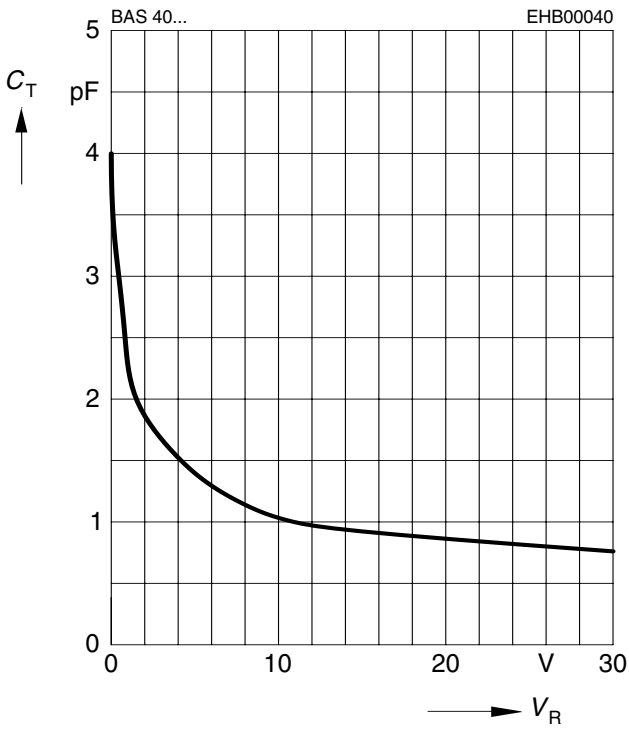
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Breakdown voltage $I_{(BR)} = 10 \mu\text{A}$	$V_{(BR)}$	40	-	-	V
Reverse current $V_R = 30 \text{ V}$	I_R	-	-	1	μA
Forward voltage $I_F = 1 \text{ mA}$ $I_F = 10 \text{ mA}$ $I_F = 40 \text{ mA}$	V_F	250 350 600	310 450 720	380 500 1000	mV
Forward voltage matching ¹⁾ $I_F = 10 \text{ mA}$	ΔV_F	-	-	20	
AC Characteristics					
Diode capacitance $V_R = 0, f = 1 \text{ MHz}$	C_T	-	3	5	pF
Differential forward resistance $I_F = 10 \text{ mA}, f = 10 \text{ kHz}$	R_F	-	10	-	Ω
Charge carrier life time $I_F = 25 \text{ mA}$	τ_{rr}	-	-	100	ps

¹⁾ ΔV_F is the difference between lowest and highest V_F in a multiple diode component.

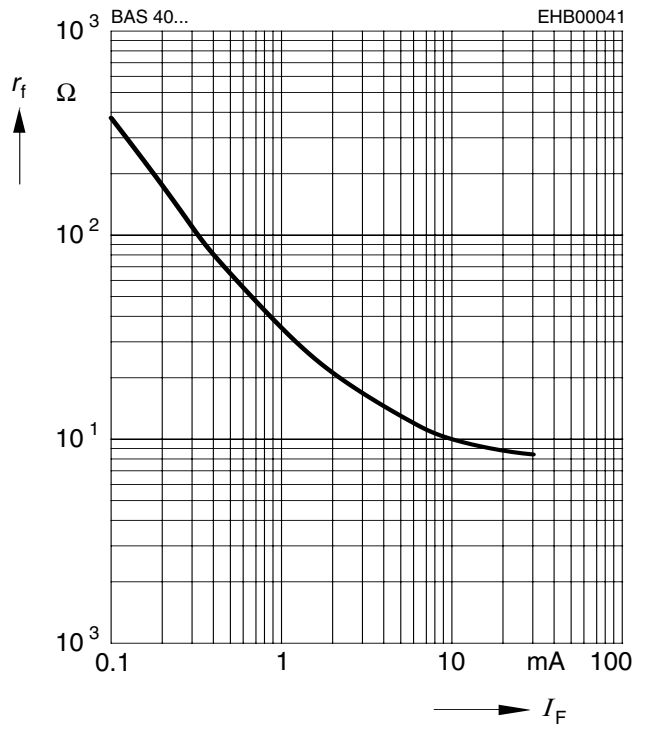
Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



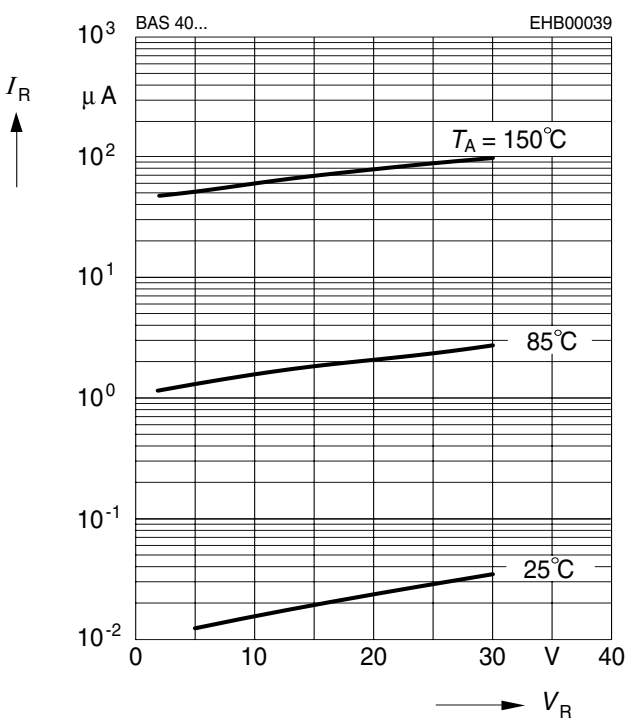
Forward resistance $r_f = f(I_F)$

$f = 10\text{kHz}$



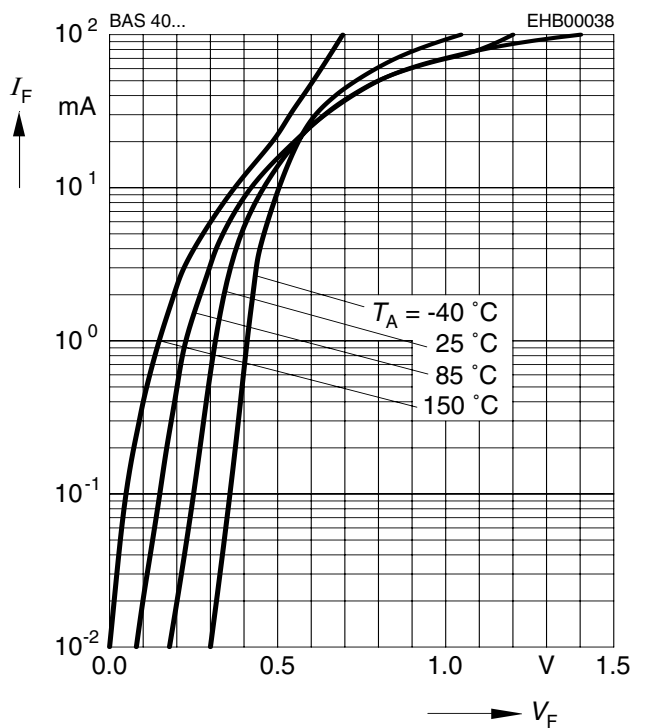
Reverse current $I_R = f(V_R)$

$T_A = \text{Parameter}$



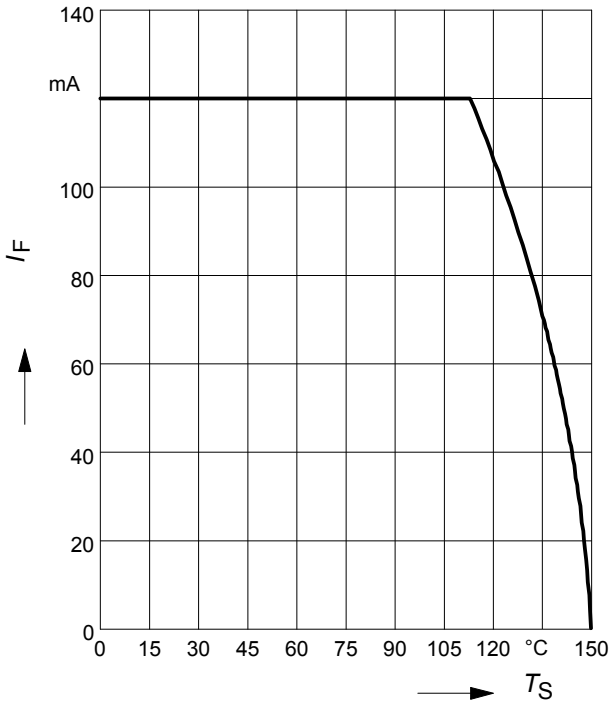
Forward current $I_F = f(V_F)$

$T_A = \text{Parameter}$



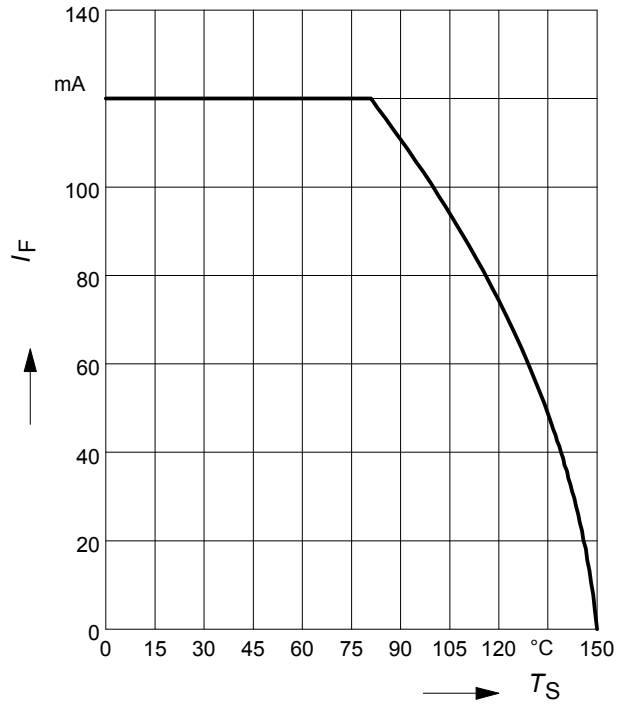
Forward current $I_F = f(T_S)$

BAS140W



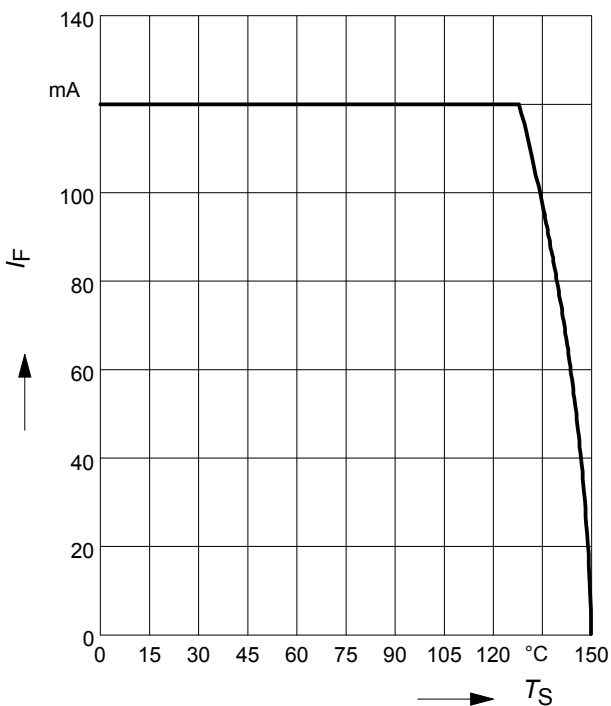
Forward current $I_F = f(T_S)$

BAS40, BAS40-07



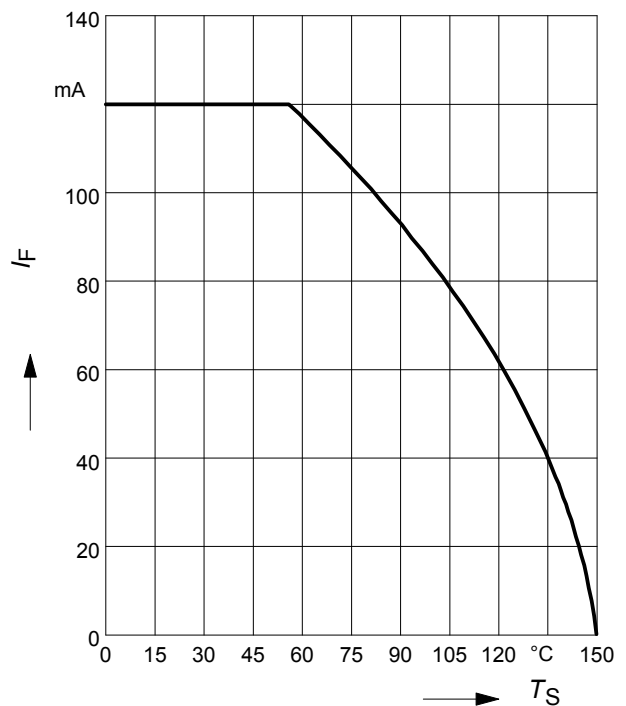
Forward current $I_F = f(T_S)$

BAS40-02L



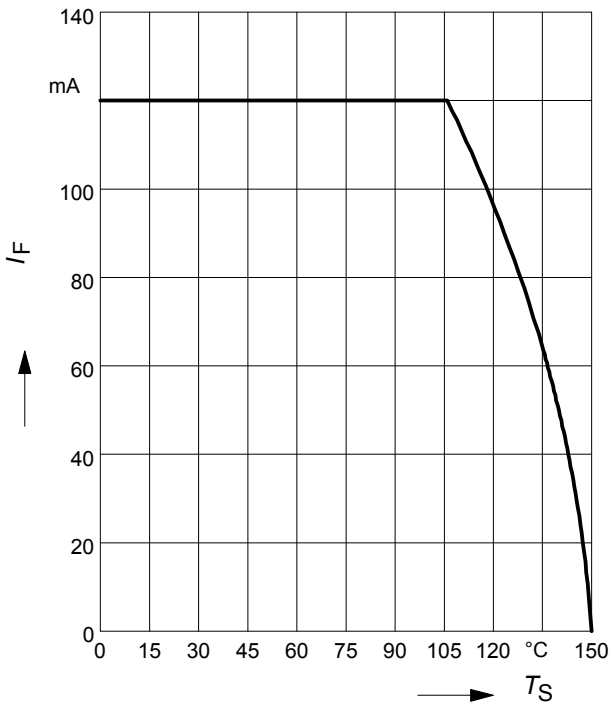
Forward current $I_F = f(T_S)$

BAS40-04, BAS40-06



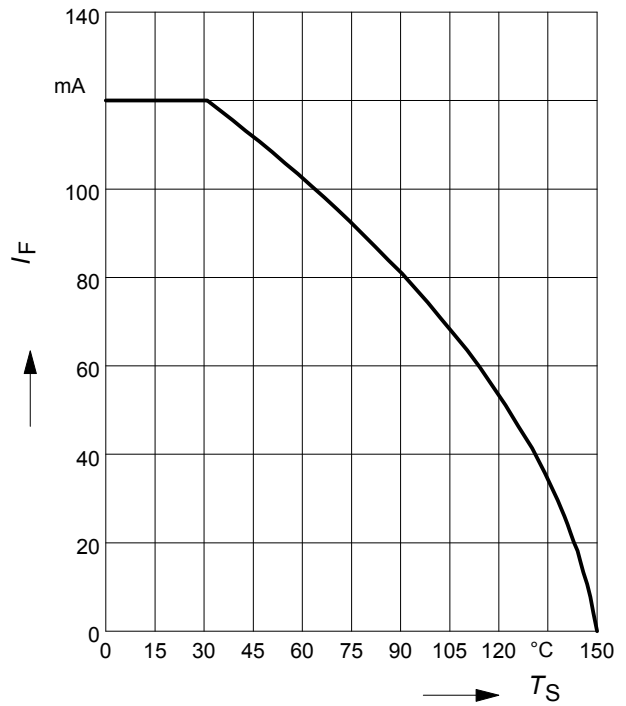
Forward current $I_F = f(T_S)$

BAS40-06W



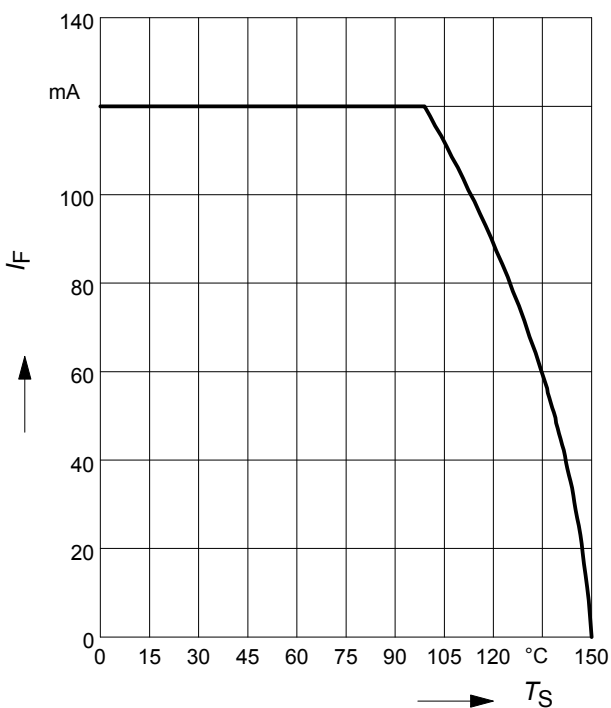
Forward current $I_F = f(T_S)$

BAS40-05



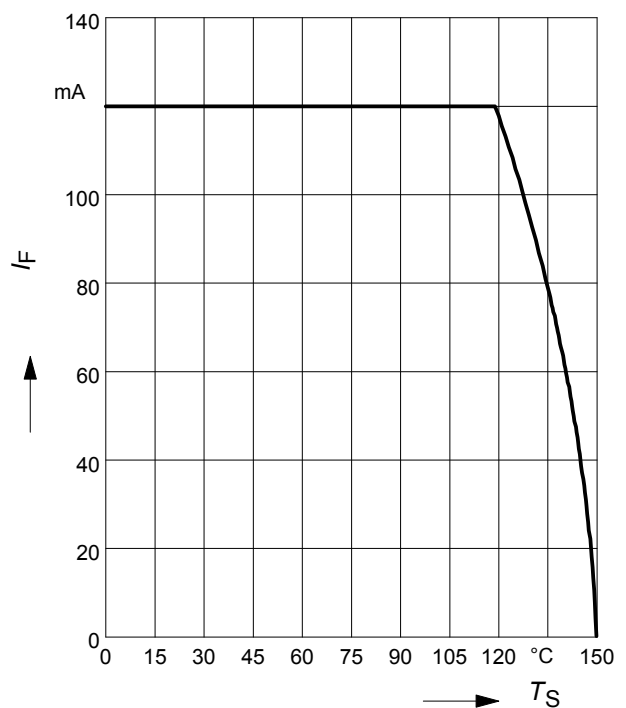
Forward current $I_F = f(T_S)$

BAS40-05W



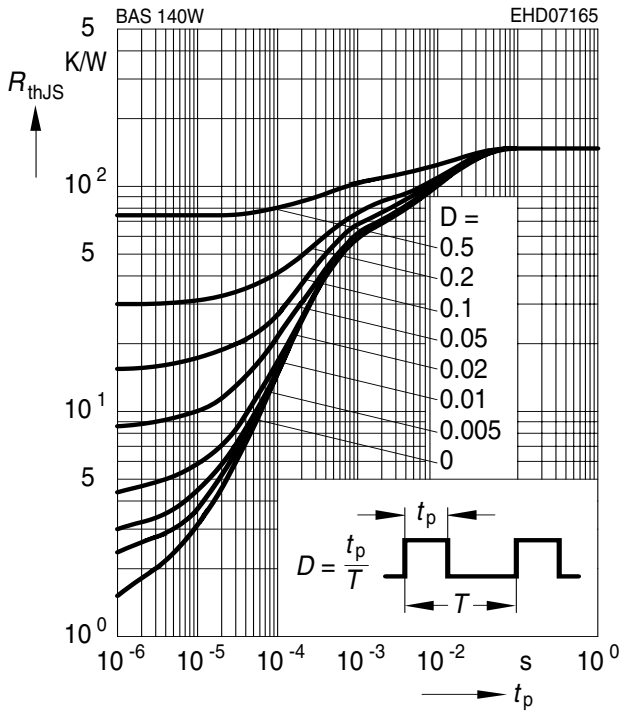
Forward current $I_F = f(T_S)$

BAS40-07W



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

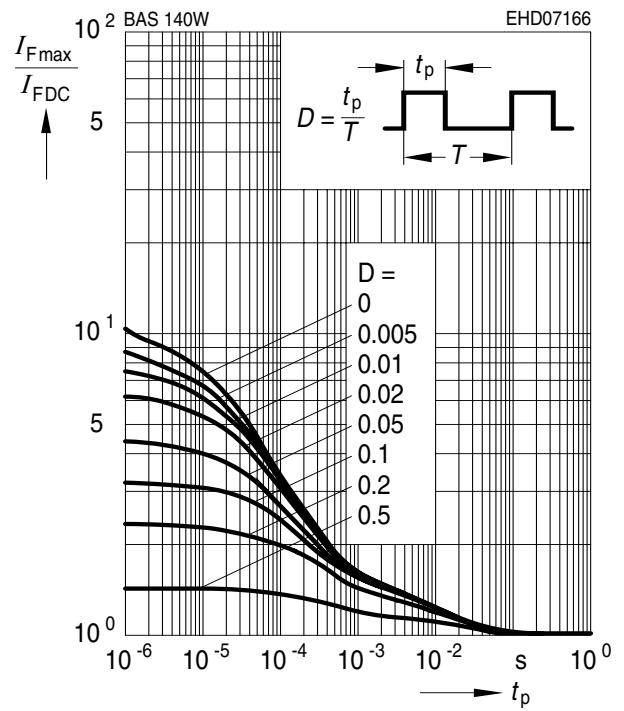
BAS140W



Permissible Pulse Load

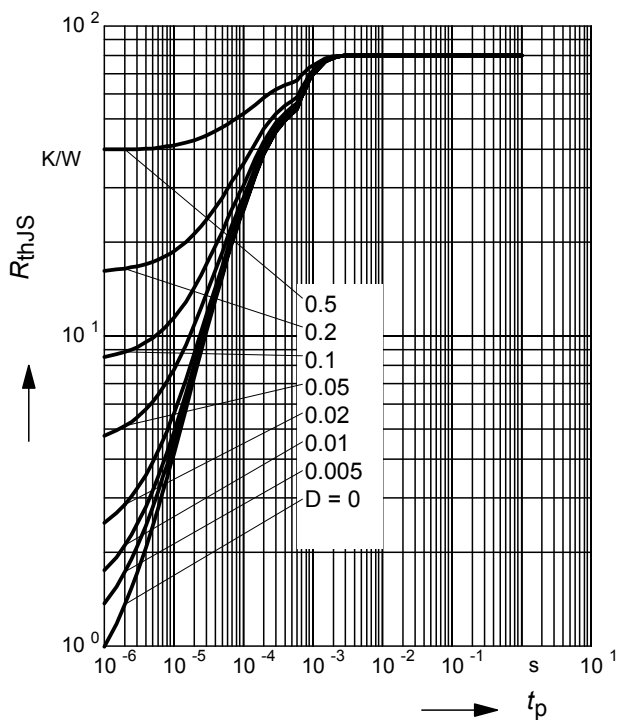
$I_{Fmax} / I_{FDC} = f(t_p)$

BAS140W



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

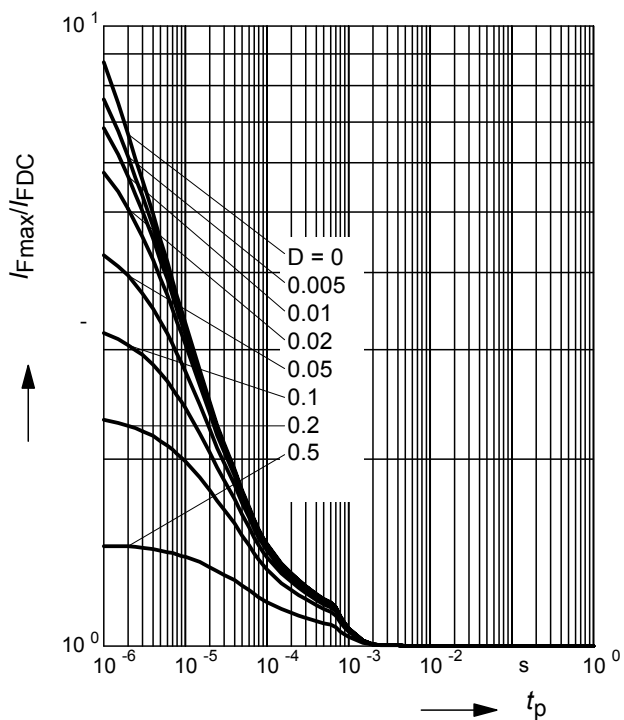
BAS40-02L



Permissible Pulse Load

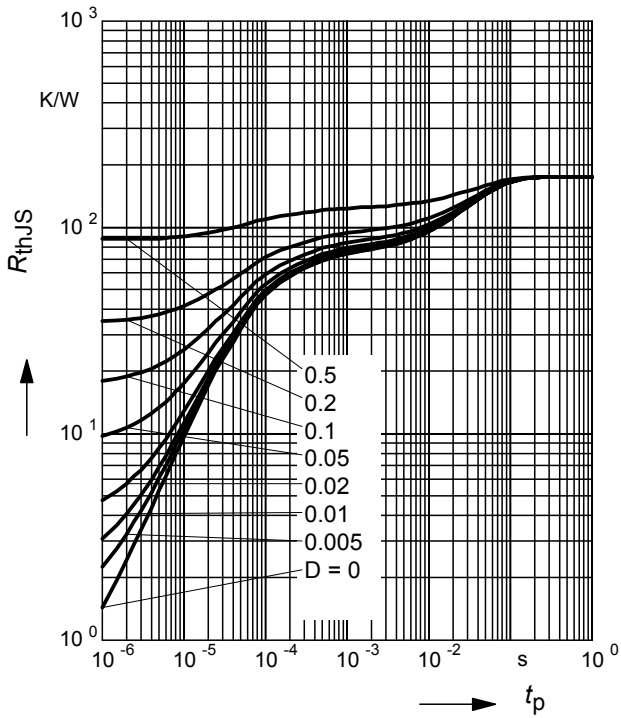
$I_{Fmax} / I_{FDC} = f(t_p)$

BAS40-02L



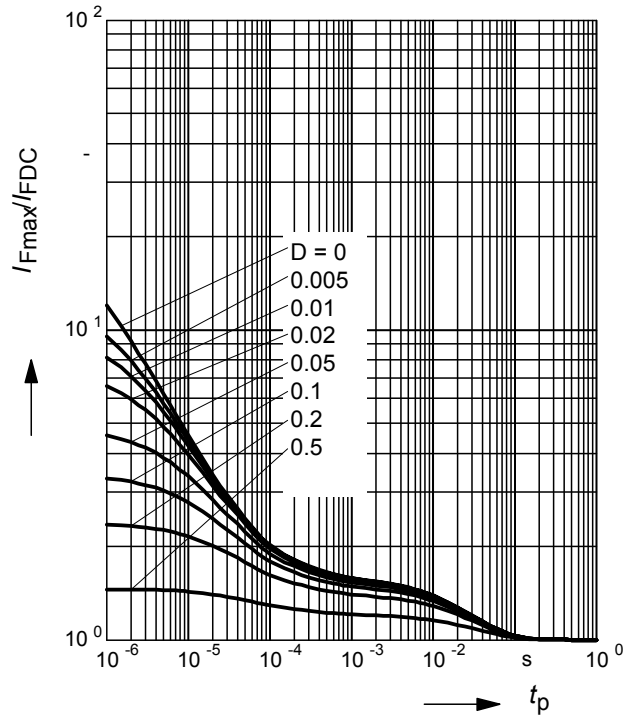
Permissible Puls Load $R_{thJS} = f(t_p)$

BAS40-06W



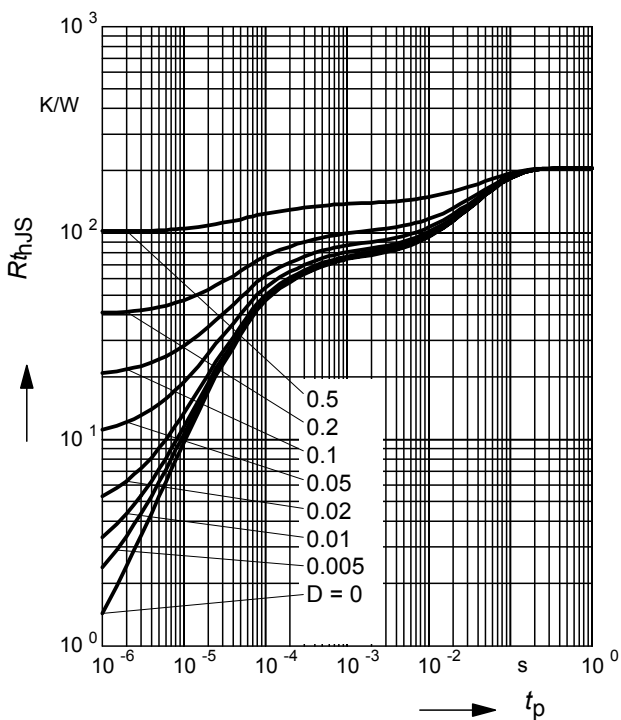
Permissible Pulse Load

$I_{Fmax}/I_{FDC} = f(t_p)$ BAS40-06W



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

BAS40-05W



Permissible Pulse Load

$I_{Fmax}/I_{FDC} = f(t_p)$ BAS40-05W

