

Thermal Characteristics

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics					
Thermal resistance, junction - case	R_{thJC}	-	-	1.1	K/W
Thermal resistance, junction - ambient, leaded	R_{thJA}	-	-	62	
SMD version, device on PCB:	R_{thJA}				
@ min. footprint		-	-	62	
@ 6 cm ² cooling area ¹⁾		-	35	-	

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Static Characteristics					
Reverse leakage current	I_R				μA
$V_R=1200\text{V}$, $T_j=25^{\circ}\text{C}$		-	-	100	
$V_R=1200\text{V}$, $T_j=150^{\circ}\text{C}$		-	-	1400	
Forward voltage drop	V_F				V
$I_F=18\text{A}$, $T_j=25^{\circ}\text{C}$		-	1.65	2.15	
$I_F=18\text{A}$, $T_j=150^{\circ}\text{C}$		-	1.7	-	

⁰J-STD20 and JESD22

¹Device on 40mm*40mm*1.5mm epoxy PCB FR4 with 6cm² (one layer, 70 μm thick) copper area for drain connection. PCB is vertical without blown air.

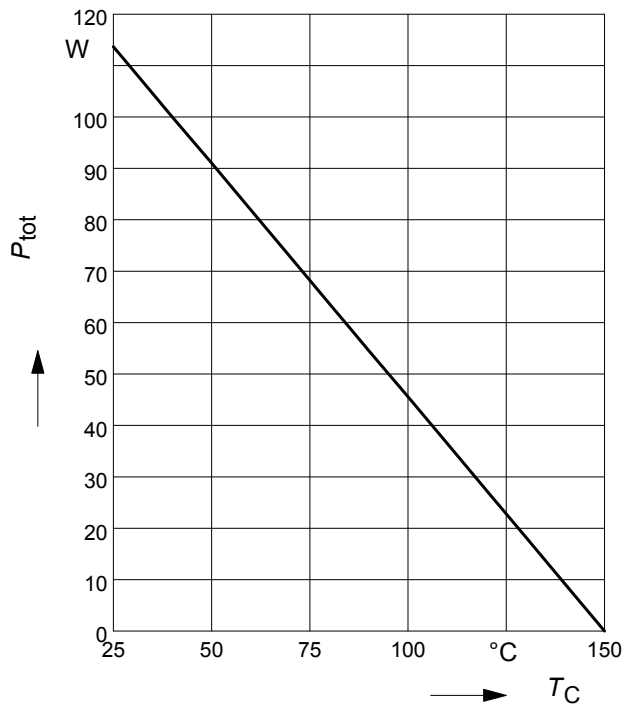
Electrical Characteristics, at $T_j = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Dynamic Characteristics					
Reverse recovery time $V_R=800V, I_F=18A, di_F/dt=800A/\mu s, T_j=25^{\circ}C$ $V_R=800V, I_F=18A, di_F/dt=800A/\mu s, T_j=125^{\circ}C$ $V_R=800V, I_F=18A, di_F/dt=800A/\mu s, T_j=150^{\circ}C$	t_{rr}	- - -	195 280 300	- - -	ns
Peak reverse current $V_R=800V, I_F = 18 A, di_F/dt=800A/\mu s, T_j=25^{\circ}C$ $V_R=800V, I_F =18A, di_F/dt=800A/\mu s, T_j=125^{\circ}C$ $V_R=800V, I_F =18A, di_F/dt=800A/\mu s, T_j=150^{\circ}C$	I_{rrm}	- - -	20.2 24.4 25.3	- - -	A
Reverse recovery charge $V_R=800V, I_F=18A, di_F/dt=800A/\mu s, T_j=25^{\circ}C$ $V_R=800V, I_F =18A, di_F/dt=800A/\mu s, T_j=125^{\circ}C$ $V_R=800V, I_F =18A, di_F/dt=800A/\mu s, T_j=150^{\circ}C$	Q_{rr}	- - -	1880 3200 3540	- - -	nC
Reverse recovery softness factor $V_R=800V, I_F=18A, di_F/dt=800A/\mu s, T_j=25^{\circ}C$ $V_R=800V, I_F=18A, di_F/dt=800A/\mu s, T_j=125^{\circ}C$ $V_R=800V, I_F=18A, di_F/dt=800A/\mu s, T_j=150^{\circ}C$	S	- - -	5.5 6.6 6.7	- - -	

1 Power dissipation

$$P_{\text{tot}} = f(T_C)$$

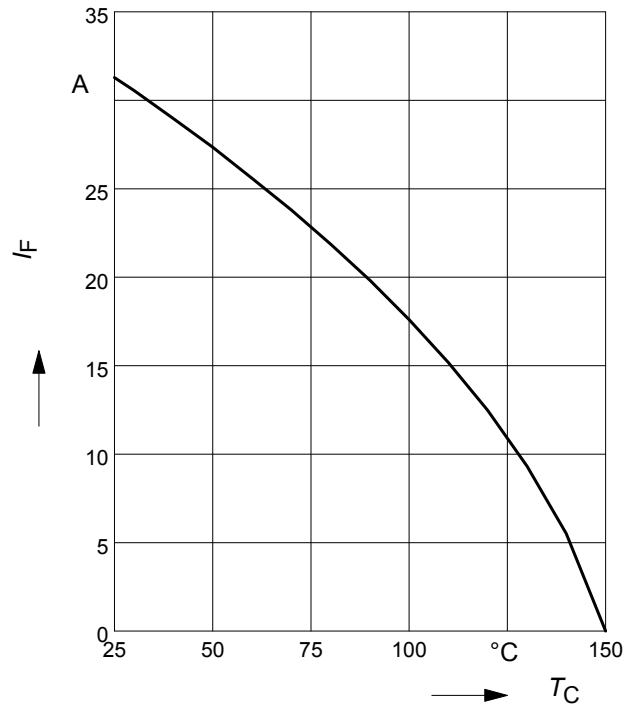
parameter: $T_j \leq 150^\circ\text{C}$



2 Diode forward current

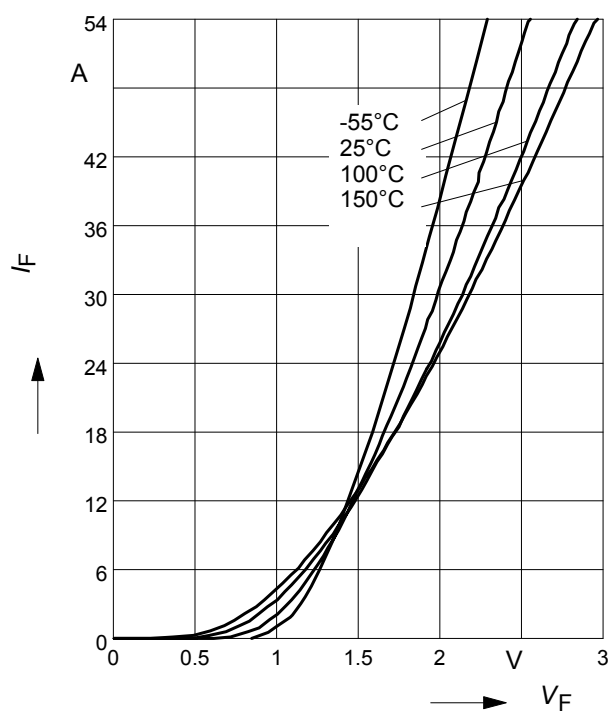
$$I_F = f(T_C)$$

parameter: $T_j \leq 150^\circ\text{C}$



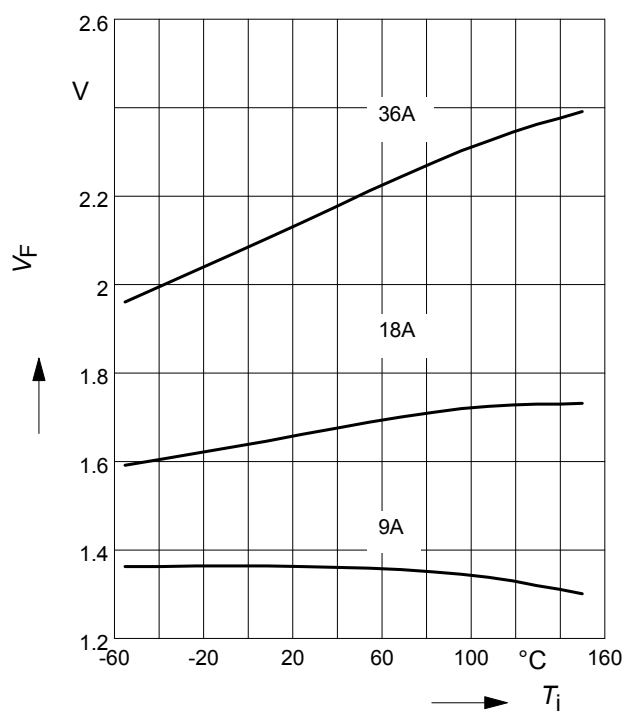
3 Typ. diode forward current

$$I_F = f(V_F)$$



4 Typ. diode forward voltage

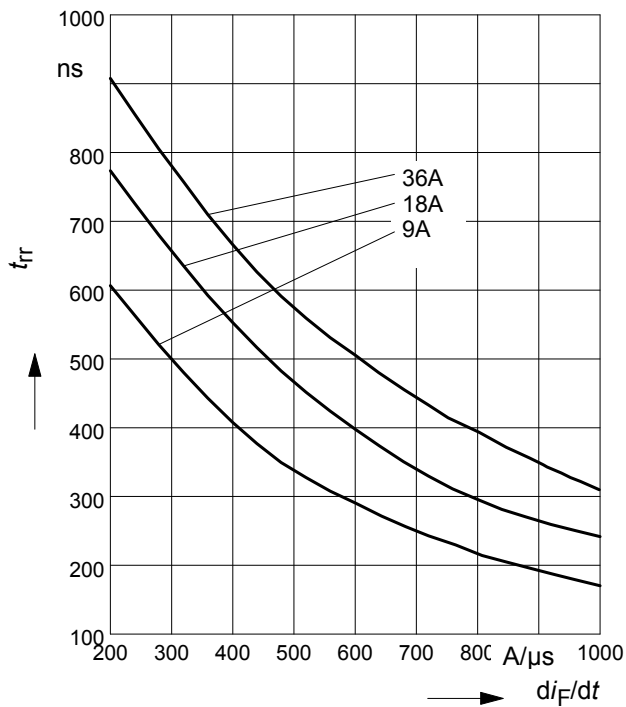
$$V_F = f(T_j)$$



5 Typ. reverse recovery time

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

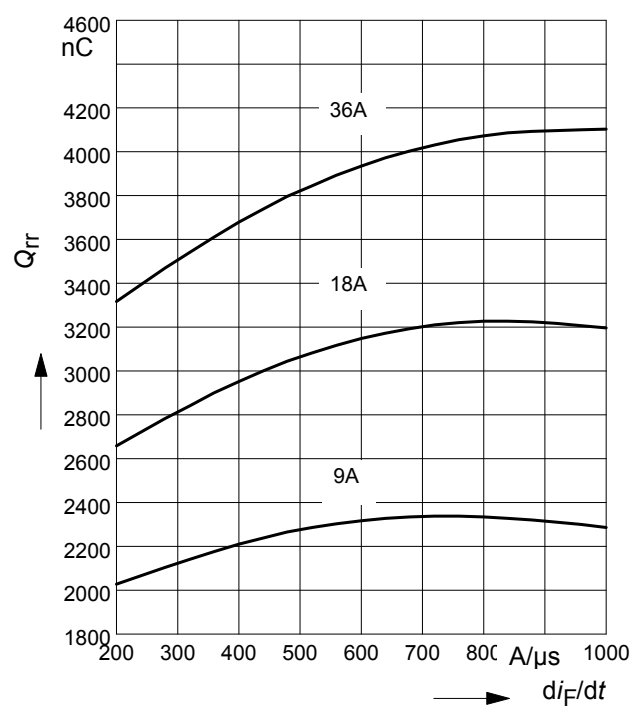
parameter: $V_R = 800V$, $T_j = 125^\circ C$



6 Typ. reverse recovery charge

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

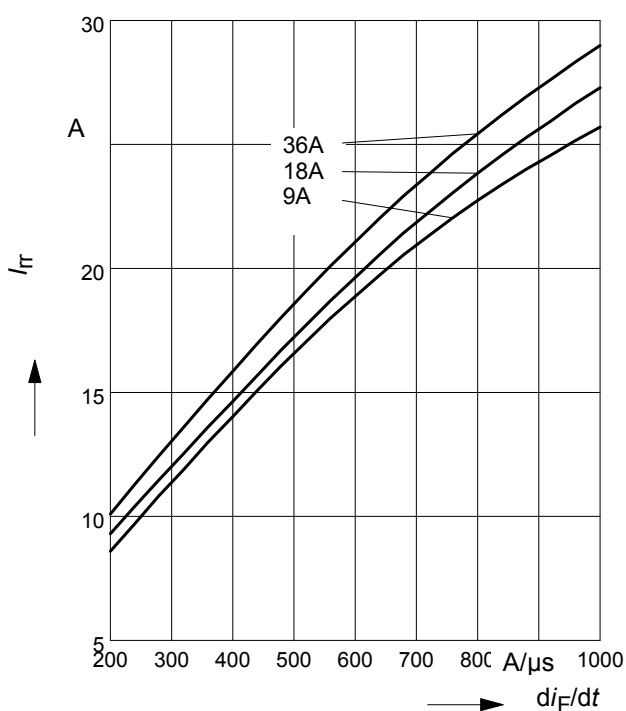
parameter: $V_R = 800V$, $T_j = 125^\circ C$



7 Typ. reverse recovery current

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

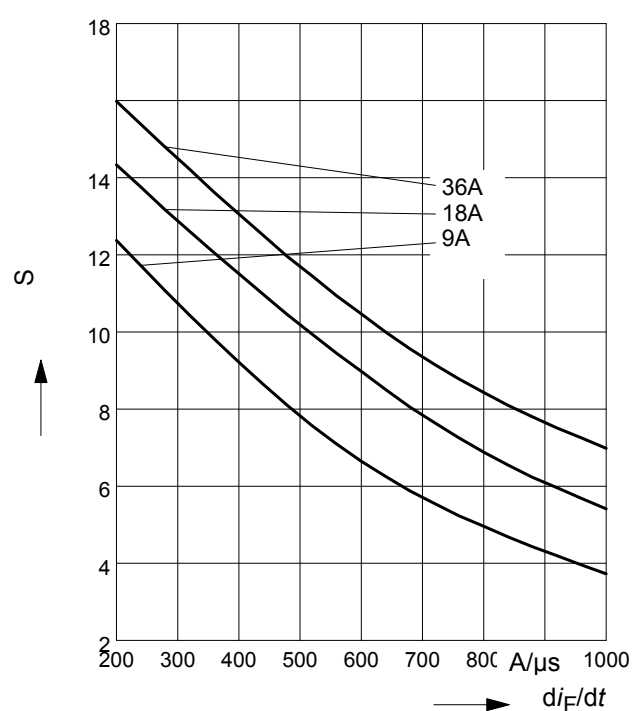
parameter: $V_R = 800V$, $T_j = 125^\circ C$



8 Typ. reverse recovery softness factor

$$S = f(dI_F/dt)$$

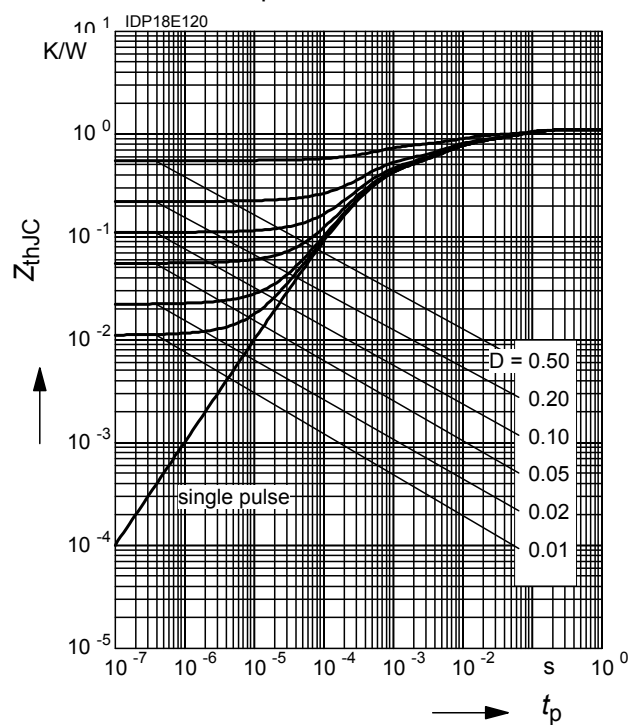
parameter: $V_R = 800V$, $T_j = 125^\circ C$



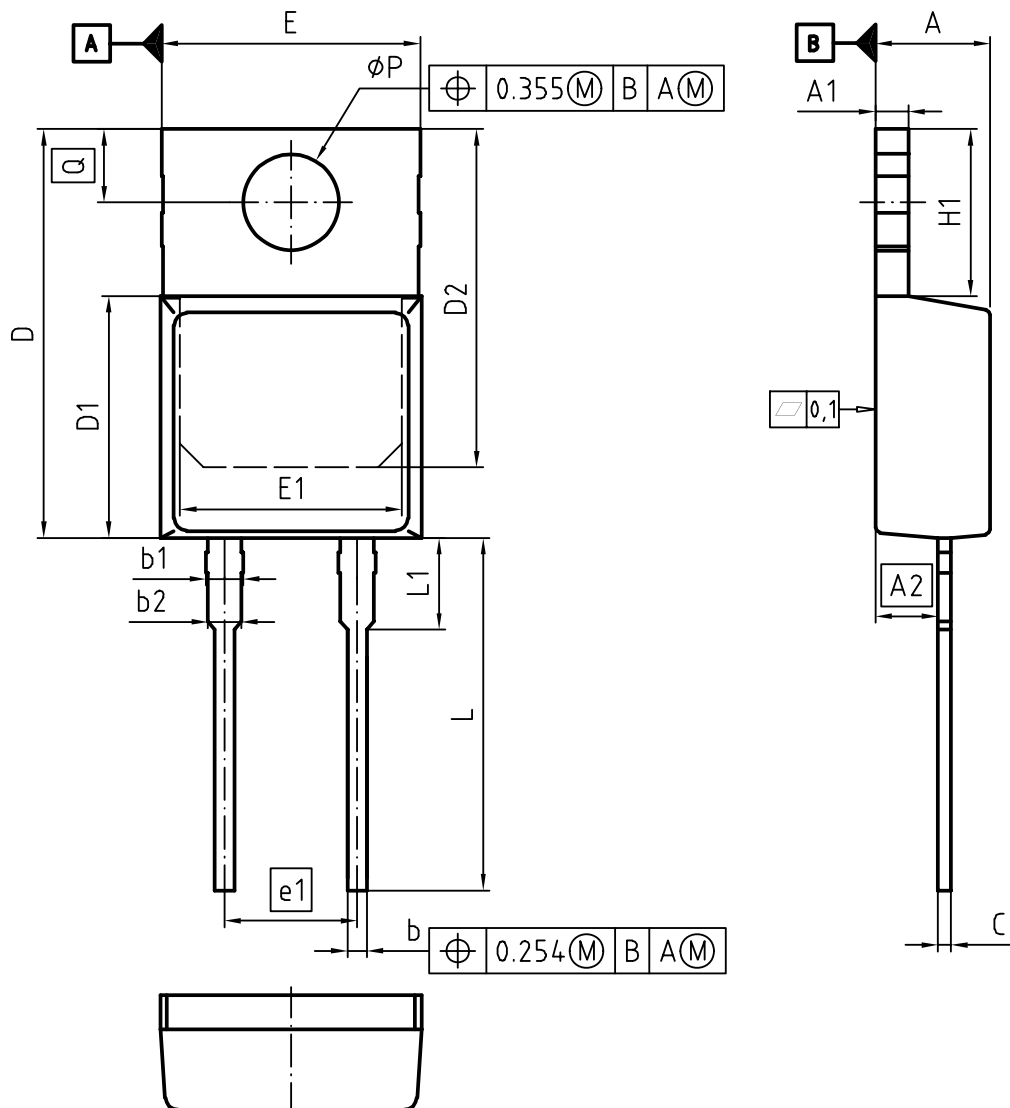
9 Max. transient thermal impedance

$$Z_{thJC} = f(t_p)$$

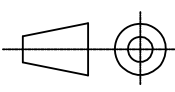
parameter : $D = t_p/T$



TO-220-2



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.30	4.50	0.169	0.177
A1	1.17	1.37	0.046	0.054
A2	2.30	2.50	0.091	0.098
b	0.65	0.85	0.026	0.033
b1	1.19	1.69	0.047	0.066
b2	1.19	1.39	0.047	0.055
c	0.40	0.60	0.016	0.024
D	15.35	15.95	0.604	0.628
D1	9.05	9.45	0.356	0.372
D2	12.30	13.05	0.484	0.514
E	9.80	10.20	0.386	0.402
E1	7.25	8.60	0.285	0.339
e1	5.08		0.200	
N	2		2	
H1	5.90	6.90	0.232	0.272
L	13.00	14.00	0.512	0.551
L1	3.30	3.70	0.130	0.146
ϕP	3.55	3.70	0.140	0.146
Q	2.60	3.00	0.102	0.118

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