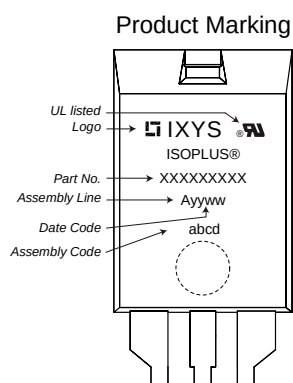


Fast Diode				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V _{RSM}	max. non-repetitive reverse blocking voltage	T _{VJ} = 25°C				600	V
V _{RRM}	max. repetitive reverse blocking voltage	T _{VJ} = 25°C				600	V
I _R	reverse current, drain current	V _R = 600 V	T _{VJ} = 25°C			60	μA
		V _R = 600 V	T _{VJ} = 150°C			0.25	mA
V _F	forward voltage drop	I _F = 10 A	T _{VJ} = 25°C			2.10	V
		I _F = 20 A				2.32	V
		I _F = 10 A	T _{VJ} = 150°C			1.42	V
		I _F = 20 A				1.68	V
I _{FAV}	average forward current	T _C = 135°C rectangular d = 0.5	T _{VJ} = 175°C			10	A
V _{F0}	threshold voltage	} for power loss calculation only				1.03	V
r _F	slope resistance					25.1	mΩ
R _{thJC}	thermal resistance junction to case					2.5	K/W
R _{thCH}	thermal resistance case to heatsink				0.50		K/W
P _{tot}	total power dissipation	T _C = 25°C				60	W
I _{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine; V _R = 0 V				50	A
C _J	junction capacitance	V _R = 400 V f = 1 MHz			6		pF
I _{RM}	max. reverse recovery current	T _{VJ} = 25 °C			4		A
		T _{VJ} = 100 °C			6		A
t _{rr}	reverse recovery time	I _F = 10 A; V _R = 300 V					
		-di _F /dt = 200 A/μs					
		T _{VJ} = 25 °C			30		ns
		T _{VJ} = 100 °C			90		ns

Package ISOPLUS220			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal ^{a)}			35	A
T_{VJ}	virtual junction temperature		-55		175	°C
T_{op}	operation temperature		-55		150	°C
T_{stg}	storage temperature		-55		150	°C
Weight				2		g
F_c	mounting force with clip		20		60	N
$d_{Spp/APP}$	creepage distance on surface striking distance through air	terminal to terminal	1.0			mm
$d_{Spb/APb}$		terminal to backside	3.0			mm
V_{ISOL}	isolation voltage	t = 1 second	3600			V
		t = 1 minute	3000			V



Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSEC16-06AC	DSEC16-06AC	Tube	50	505131

Similar Part	Package	Voltage class
DSEC16-06A	TO-220AB (3)	600

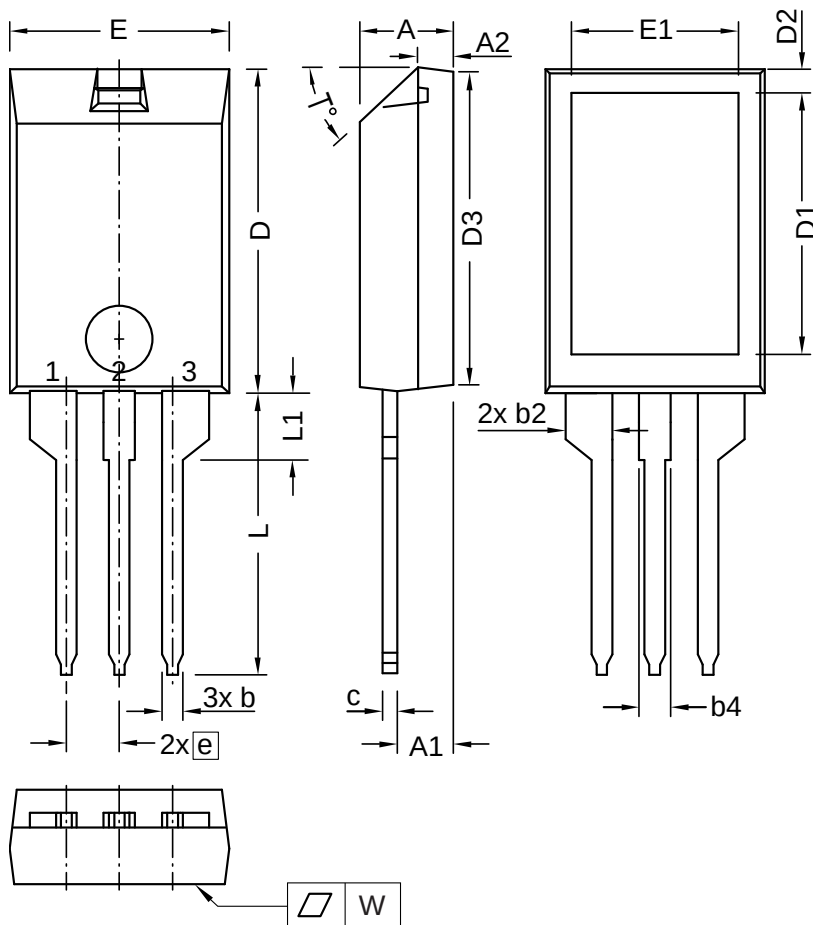
Equivalent Circuits for Simulation

* on die level

 $T_{VJ} = 175^{\circ}\text{C}$

$I \rightarrow$	V_0	R_0	Fast Diode	
$V_{0 \max}$	threshold voltage	1.03		V
$R_{0 \max}$	slope resistance *	22		mΩ

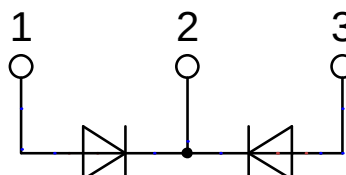
Outlines ISOPLUS220



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.00	5.00	0.157	0.197
A1	2.50	3.00	0.098	0.118
A2	1.60	1.80	0.063	0.071
b	0.90	1.30	0.035	0.051
b2	2.35	2.55	0.093	0.100
b4	1.25	1.65	0.049	0.065
c	0.70	1.00	0.028	0.039
D	15.00	16.00	0.591	0.630
D1	12.00	13.00	0.472	0.512
D2	1.10	1.50	0.043	0.059
D3	14.90	15.50	0.587	0.610
E	10.00	11.00	0.394	0.433
E1	7.50	8.50	0.295	0.335
e	2.54 BSC		0.100 BSC	
L	13.00	14.50	0.512	0.571
L1	3.00	3.50	0.118	0.138
T°	42.5	47.5		
W	-	0.1	-	0.004

Die konvexe Form des Substrates ist typ. < 0.04 mm über der Kunststoffoberfläche der Bauteilunterseite
The convex bow of substrate is typ. < 0.04 mm over plastic surface level of device bottom side

Die Gehäuseabmessungen entsprechen dem Typ TO-273 gemäß JEDEC außer D und D1.
This drawing will meet all dimensions requirement of JEDEC outline TO-273 except D and D1.



Fast Diode

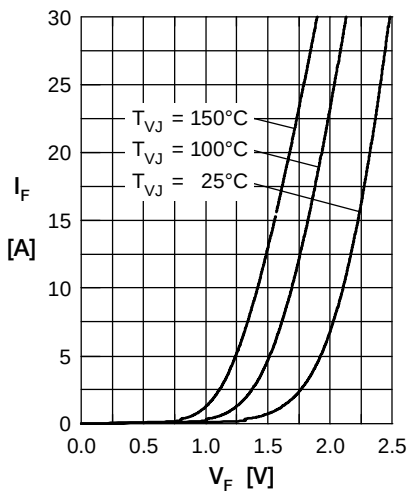


Fig. 1 Forward current I_F versus V_F

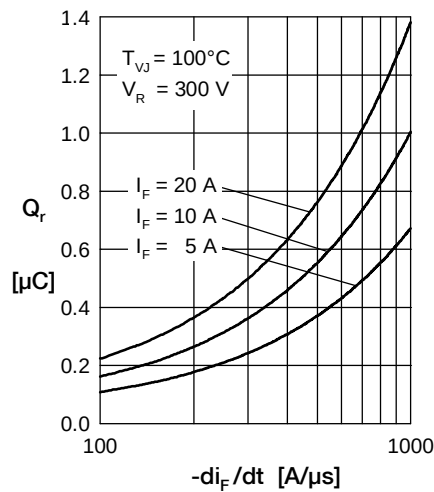


Fig. 2 Typ. reverse recov. charge Q_r versus $-di_F/dt$

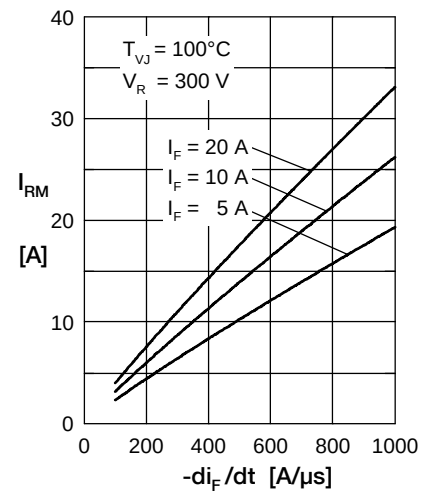


Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

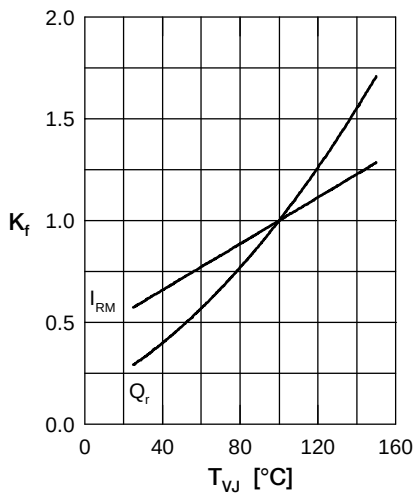


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

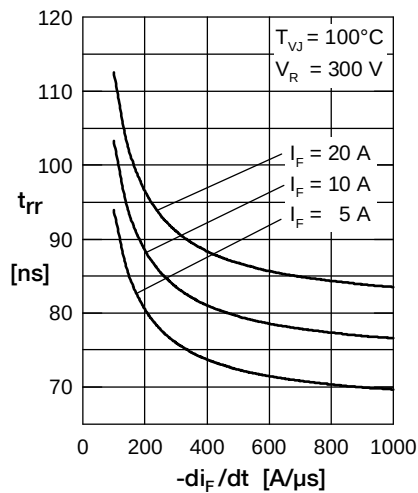


Fig. 5 Typ. recovery time t_{rr} versus $-di_F/dt$

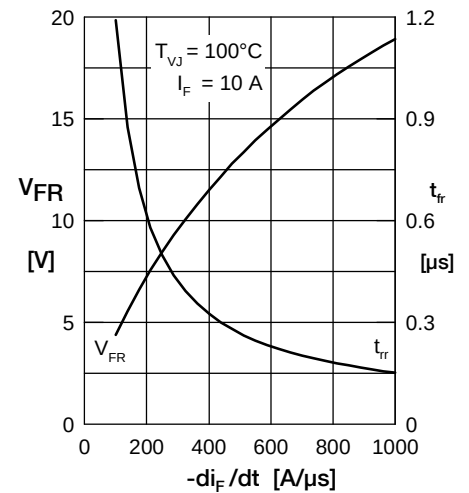


Fig. 6 Typ. peak forward voltage V_{FR} and t_{rr} versus di_F/dt

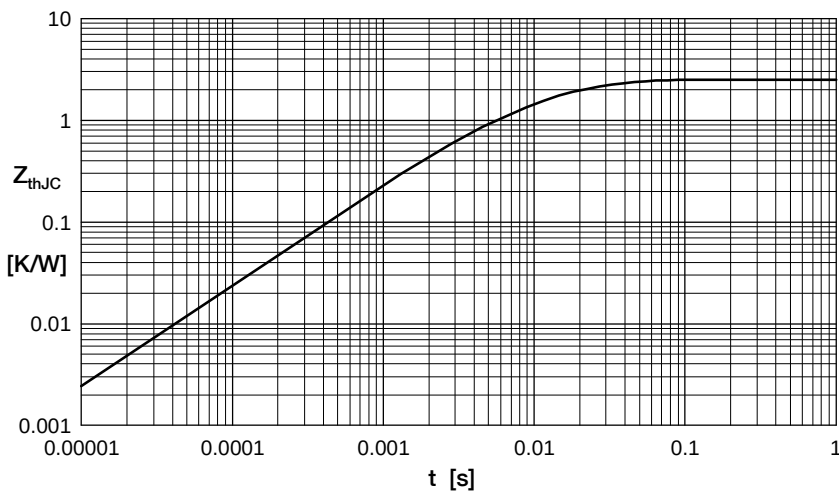


Fig. 7 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} [K/W]	t_i [s]
1	1.449	0.0052
2	0.5578	0.0003
3	0.4931	0.0169