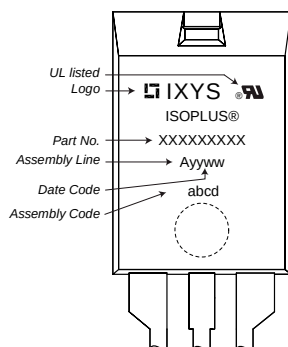


Fast Diode				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				600	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				600	V
I_R	reverse current, drain current	$V_R = 600\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			250	μA
		$V_R = 600\text{ V}$	$T_{VJ} = 150^{\circ}\text{C}$			2	mA
V_F	forward voltage drop	$I_F = 30\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			2.51	V
		$I_F = 60\text{ A}$				3.19	V
		$I_F = 30\text{ A}$	$T_{VJ} = 150^{\circ}\text{C}$			1.61	V
		$I_F = 60\text{ A}$				2.24	V
I_{FAV}	average forward current	$T_C = 110^{\circ}\text{C}$ rectangular	$T_{VJ} = 175^{\circ}\text{C}$ d = 0.5			30	A
V_{F0}	threshold voltage	} for power loss calculation only		$T_{VJ} = 175^{\circ}\text{C}$		0.84	V
r_F	slope resistance					19.6	m Ω
R_{thJC}	thermal resistance junction to case					1.1	K/W
R_{thCH}	thermal resistance case to heatsink				0.50		K/W
P_{tot}	total power dissipation	$T_C = 25^{\circ}\text{C}$				135	W
I_{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine; $V_R = 0\text{ V}$		$T_{VJ} = 45^{\circ}\text{C}$		250	A
C_J	junction capacitance	$V_R = 400\text{ V}$ f = 1 MHz		$T_{VJ} = 25^{\circ}\text{C}$	26		pF
I_{RM}	max. reverse recovery current	} $I_F = 30\text{ A}; V_R = 300\text{ V}$ -di _F /dt = 200 A/ μs		$T_{VJ} = 25^{\circ}\text{C}$	2.5		A
				$T_{VJ} = 100^{\circ}\text{C}$	4.5		A
t_{rr}	reverse recovery time			$T_{VJ} = 25^{\circ}\text{C}$	25		ns
				$T_{VJ} = 100^{\circ}\text{C}$	70		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

Product Marking

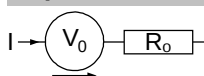


Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSEC59-06BC	DSEC59-06BC	Tube	50	505124

Similar Part	Package	Voltage class
DSEC60-06B	TO-247AD (3)	600
DSEC60-06A	TO-247AD (3)	600
DHG60C600HB	TO-247AD (3)	600

Equivalent Circuits for Simulation

* on die level

 $T_{VJ} = 175\text{ °C}$ **Fast Diode** $V_{0\max}$ threshold voltage

0.84

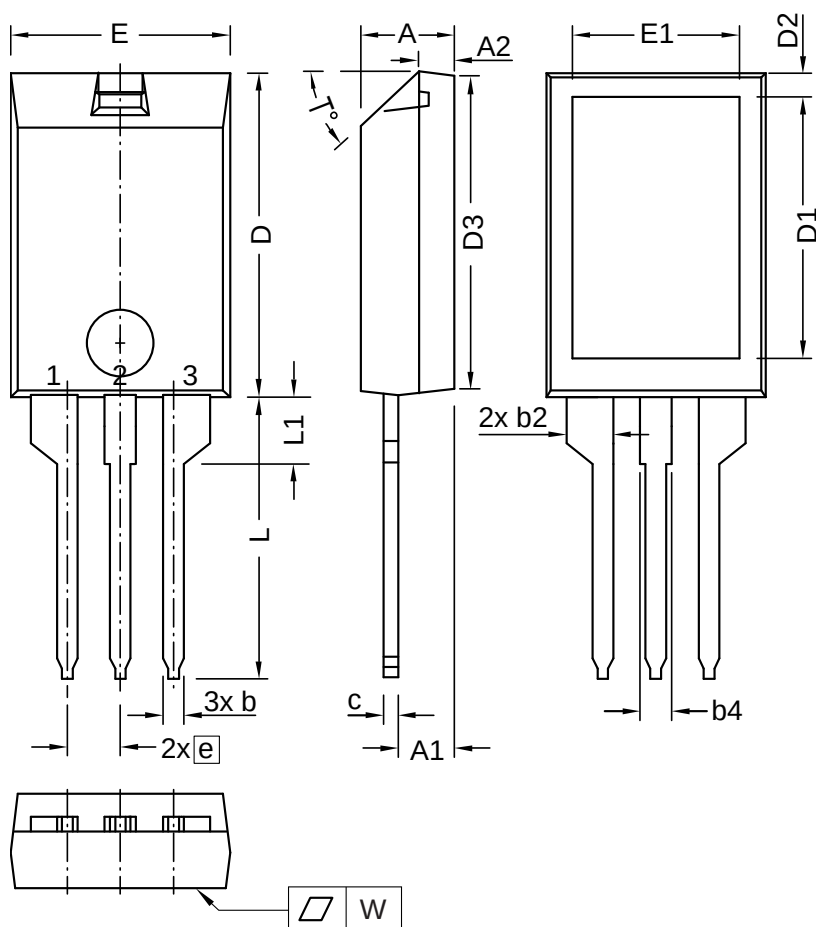
V

 $R_{0\max}$ slope resistance *

16.4

mΩ

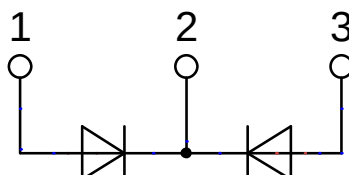
Outlines ISOPLUS220



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

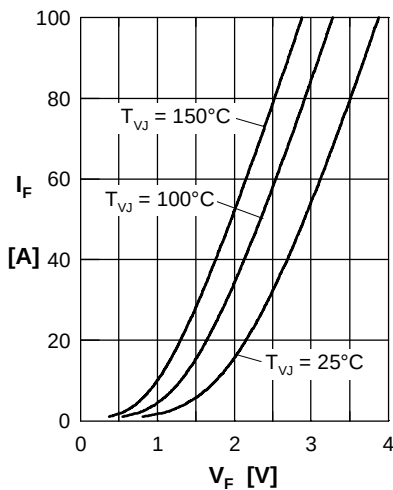


Fig. 1 Forward current I_F versus V_F

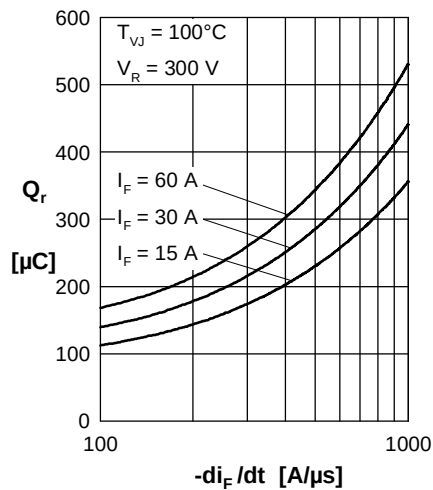


Fig. 2 Typ. reverse recov. charge Q_r versus $-di_F/dt$

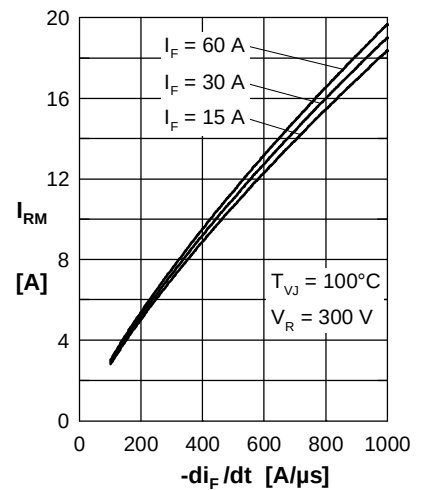


Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

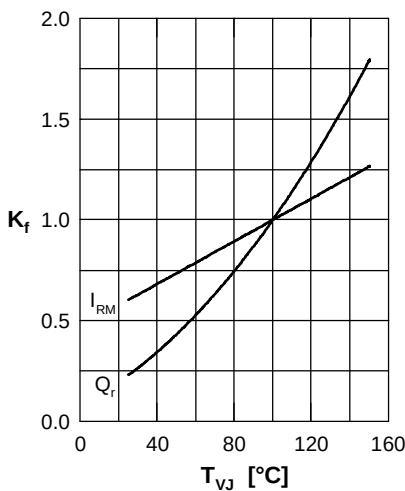


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

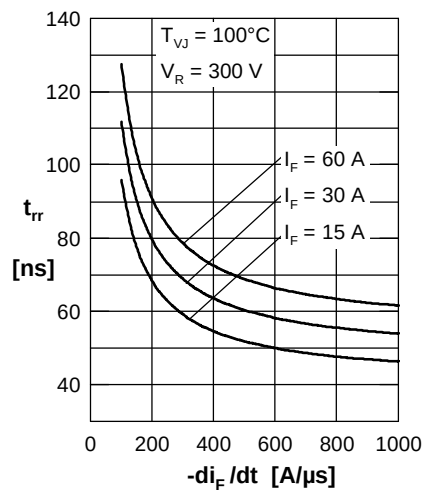


Fig. 5 Typ. recovery time t_{rr} versus $-di_F/dt$

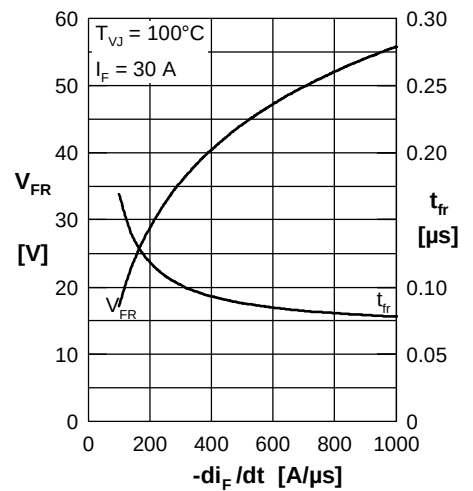


Fig. 6 Typ. peak forward voltage V_{FR} and t_{fr} versus di_F/dt

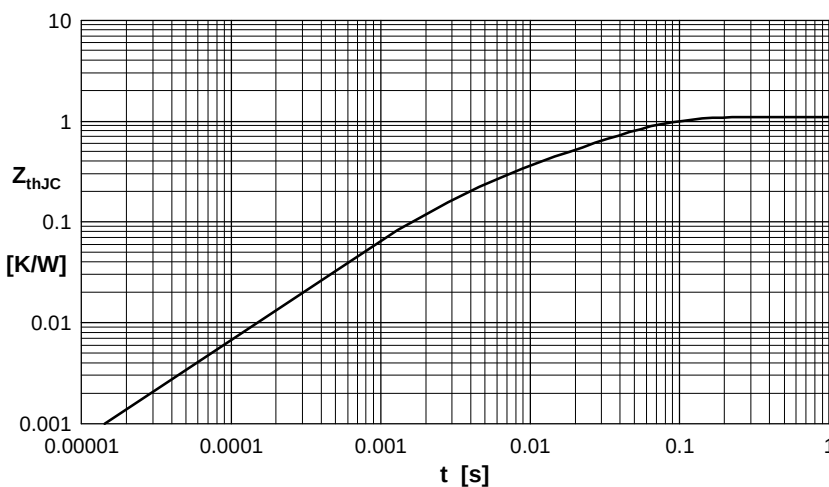


Fig. 7 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.030	0.0005
2	0.100	0.0050
3	0.360	0.0200
4	0.610	0.0500