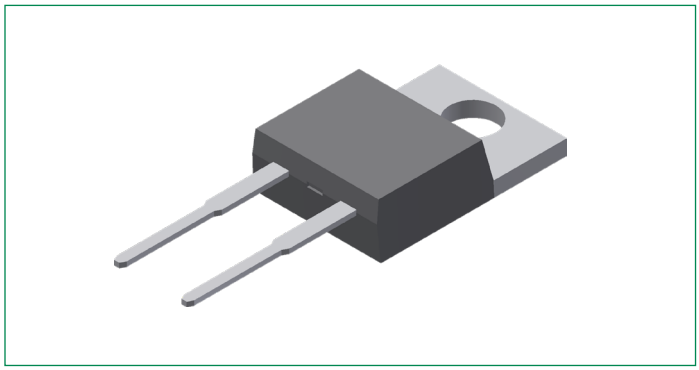
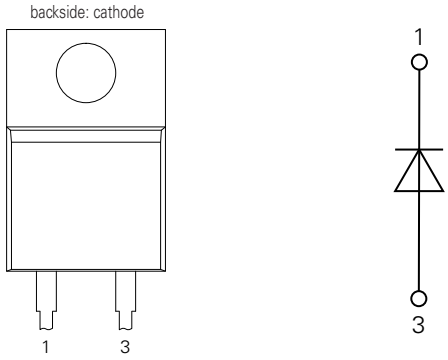
DPU30I1200PA

1200 V, 30 A Fast Recovery Diode

RoHS



Pinout Diagram TO-220



1: Cathode; **3:** Anode; **Backside:** Cathode

Description

This 1200 V, 30 A general-purpose, power fast recovery diode features a single chip in a TO-220 package.

Features

- Reverse leakage current, $I_R \leq 20$ µA @ 25 °C
- Efficient heat transfer; $R_{th(j-c)}$ is 0.44 K/W
- Typical recovery time is 39 ns

Benefits

- Stable long-term reliability
- High current-handling capability
- Optimized for higher switching frequencies

Applications

- Power factor control
- Switch mode power supplies (SMPS)
- Maximum Power Point Tracking (MPPT) solar inverters

Package TO-220

- RoHS compliant
- Epoxy meets UL 94V-0
- Industry-standard outline

Product Summary

Characteristic	Value	Unit
V_{RRM}	1200	V
$I_{F(AV)}$	30	A
t_{rr}	39	ns

Maximum Ratings

Symbol	Characteristics	Condition	Value	Units
V_{RRM}	Repetitive Peak Reverse Voltage	T_{vj}= 25 °C	1200	V
$I_{F(AV)}$	Average Forward Current	T_c = 120 °C, T_{vj} = 150 °C, rectangular, d = 0.5	30	A
I_{FSM}	Non-repetitive Forward Surge Current	t_p = 10 ms, f = 50 Hz, half sine wave, V_R = 0 V	250	A
P_{tot}	Total Power Dissipation	T_c = 25 °C	284	W
T_{vj}	Virtual Junction Temperature Range	–	–55 to +150	°C
T_{op}	Operating Temperature Range	–	–55 to +150	°C
T_{stg}	Storage Temperature Range	–	–55 to +150	°C

Electrical Characteristics – Static

Symbol	Characteristics	Conditions	Value			Units
			Min.	Typ.	Max.	
I_R	Reverse Current	V_R = 1200 V, T_{vj}= 25 °C	–	–	20	µA
		V_R = 1200 V, T_{vj}= 150 °C	–	–	0.5	mA
V_F	Forward Voltage	I_F = 30 A; Pulse, T_{vj} = 25 °C	–	1.84	2.4	V
		I_F = 60 A; Pulse, T_{vj} = 25 °C	–	–	2.6	
		I_F = 30 A; Pulse, T_{vj} = 150 °C	–	1.52	1.9	
		I_F = 60 A; Pulse, T_{vj} = 150 °C	–	–	2.2	
$V_{(FO)}$	Threshold Voltage	–	–	–	0.71	V
r_F	Slope Resistance	–	–	–	23.2	mΩ

Electrical Characteristics – Dynamic (T_{vj} = 25 °C, unless otherwise specified)

Symbol	Characteristics	Conditions	Value			Units
			Min.	Typ.	Max.	
C_j	Junction Capacitance	V_R = 600 V, f = 1 MHz	–	15	–	pF
t_{rr}	Reverse Recovery Time	I_F = 0.5 A, I_R = 1 A, I_{rr} = 0.25 A	–	65	75	ns
		I_F = 1 A, V_R = 30 V, –di_F/dt = 200 A/µs	–	39	–	
		I_F = 30 A, V_R = 600 V, –di_F/dt = 200 A/µs	–	123	–	
I_{rm}	Peak Reverse Recovery Current	I_F = 30 A, V_R = 600 V, –di_F/dt = 200 A/µs	–	7.7	–	A

Thermal Specifications

Symbol	Characteristics	Value			Units
		Min.	Typ.	Max.	
$R_{th(j-c)}$	Thermal Resistance, Junction to Case	–	–	0.44	K/W

Package TO-220

Symbol	Characteristics	Conditions	Value			Units
			Min.	Typ.	Max.	
G	Weight	–	–	2	–	g
M_d	Mounting Torque	–	0.4	–	0.6	Nm
F_C	Mounting Force with clip	–	20	–	60	N

Revised: TK.02/04/2026

Characteristic Curves

Figure 1. Typical Forward Characteristics

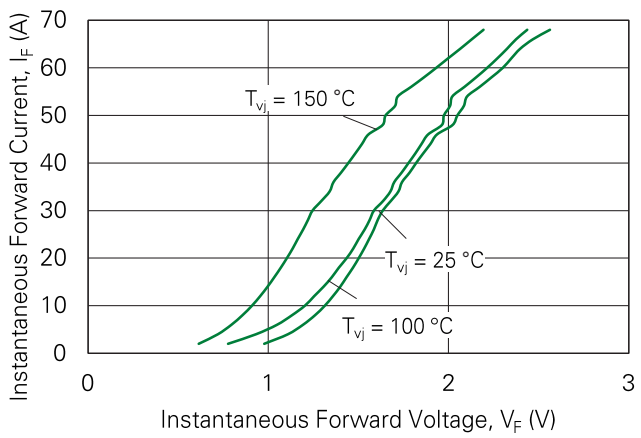


Figure 2. Typical Reverse Recovery Charge vs. $-di_F/dt$

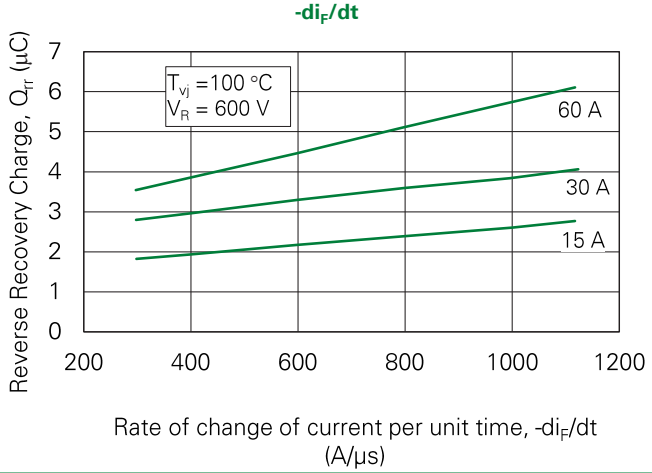


Figure 3. Typical Peak Reverse Recovery Current vs. $-di_F/dt$

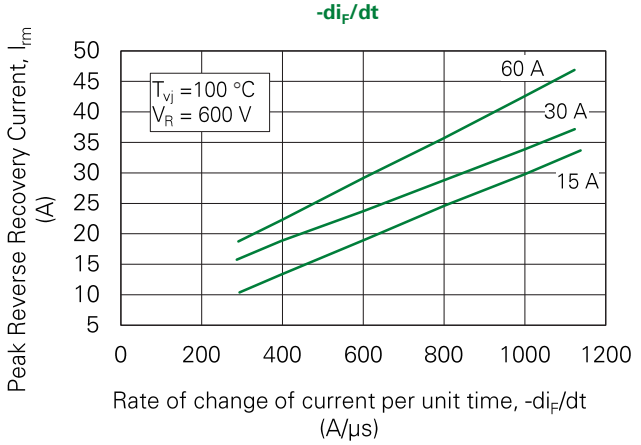


Figure 4. Typical Recovery Time vs. $-di_F/dt$

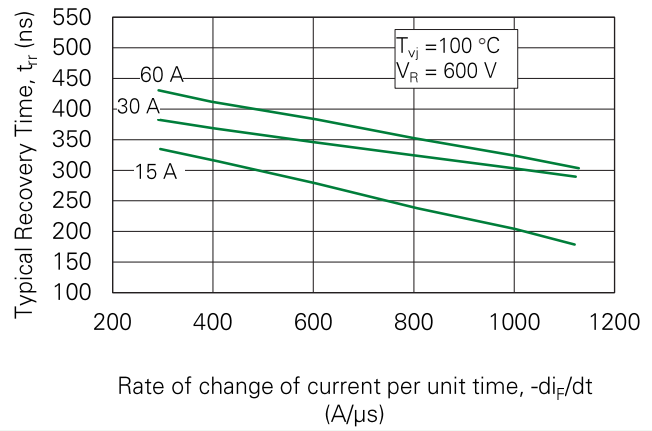


Figure 5. Typical Forward Recovery Voltage vs. Diode Current Slope

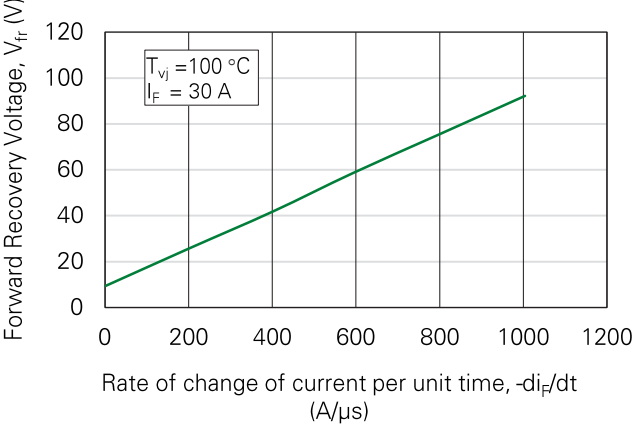


Figure 6. Typical Forward Recovery Time vs. Diode Current Slope

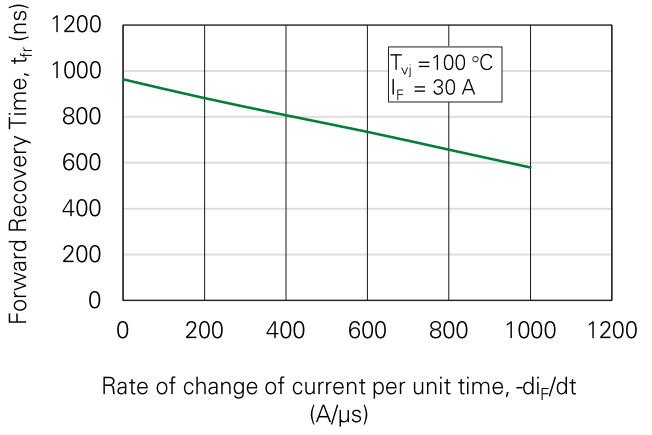
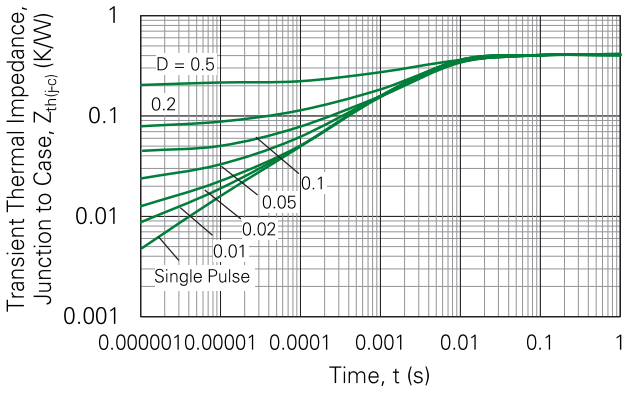


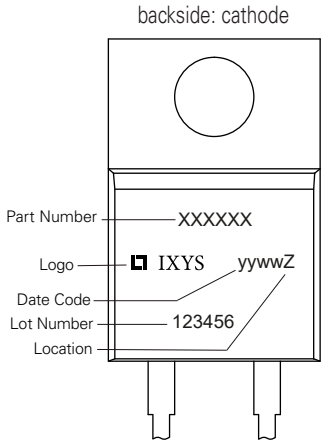
Figure 7. Transient Thermal Impedance, Junction to Case



Packing Options

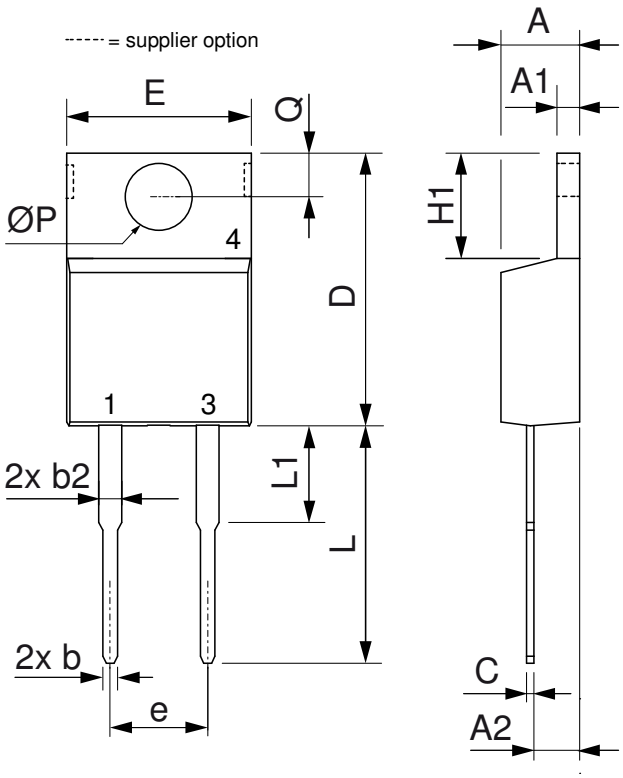
Part Number	Marking	Packing Mode
DPU30I1200PA	DPU30I1200PA	Tube (50 pcs)

Part Numbering and Marking



D	=	Diode
P	=	FRED
U	=	Ultrafast
30	=	Current Rating (A)
I	=	Single Part Diode
1200	=	Voltage Rating (V)
PA	=	Package (TO-220AC)

Part Outline Drawing TO-220AC



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max
A	4.32	4.82	0.170	0.190
A1	1.14	1.39	0.045	0.055
A2	2.29	2.79	0.090	0.110
b	0.64	1.01	0.025	0.040
b2	1.15	1.65	0.045	0.065
C	0.35	0.56	0.014	0.022
D	14.73	16.00	0.580	0.630
E	9.91	10.66	0.390	0.420
e	5.08 BSC		0.200 BSC	
H1	5.85	6.85	0.230	0.270
L	12.70	13.97	0.500	0.550
L1	2.79	5.84	0.110	0.230
ØP	3.54	4.08	0.139	0.161
Q	2.54	3.18	0.100	0.125