

preliminary

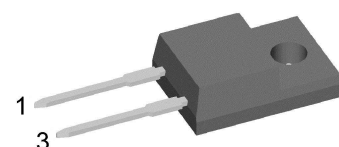
Sonic Fast Recovery Diode

V_{RRM}	=	600 V
I_{FAV}	=	5 A
t_{rr}	=	35 ns

High Performance Fast Recovery Diode
 Low Loss and Soft Recovery
 Single Diode

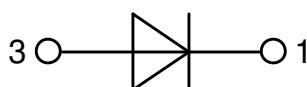
Part number

DHG5I600PM



Backside: isolated

 E72873



Features / Advantages:

- Planar passivated chips
- Very low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low I_{rm} -values
- Very soft recovery behaviour
- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low I_{rm} reduces:
 - Power dissipation within the diode
 - Turn-on loss in the commutating switch

Applications:

- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode
- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)

Package: TO-220FP

- Isolation Voltage: 2500 V~
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0
- Soldering pins for PCB mounting
- Base plate: Plastic overmolded tab
- Reduced weight

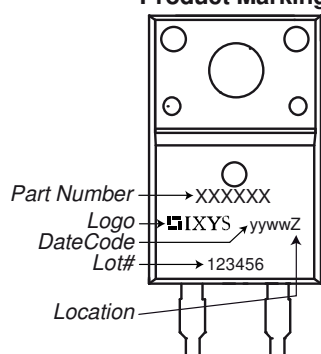
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Fast Diode				Ratings				
Symbol	Definition	Conditions		min.	typ.	max.	Unit	
V _{RSM}	max. non-repetitive reverse blocking voltage	T _{VJ} = 25°C				600	V	
V _{RRM}	max. repetitive reverse blocking voltage	T _{VJ} = 25°C				600	V	
I _R	reverse current, drain current	V _R = 600 V	T _{VJ} = 25°C			10	μA	
		V _R = 600 V	T _{VJ} = 125°C			1	mA	
V _F	forward voltage drop	I _F = 5 A	T _{VJ} = 25°C			2.21	V	
		I _F = 10 A				3.07	V	
		I _F = 5 A	T _{VJ} = 125°C			2.17	V	
		I _F = 10 A				3.13	V	
I _{FAV}	average forward current	T _C = 85°C rectangular d = 0.5	T _{VJ} = 150°C			5	A	
V _{F0}	threshold voltage	} for power loss calculation only		T _{VJ} = 150°C		1.14	V	
r _F	slope resistance					185	mΩ	
R _{thJC}	thermal resistance junction to case					4.2	K/W	
R _{thCH}	thermal resistance case to heatsink				0.5		K/W	
P _{tot}	total power dissipation	T _C = 25°C				30	W	
I _{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine; V _R = 0 V		T _{VJ} = 45°C		40	A	
C _J	junction capacitance	V _R = 400 V f = 1 MHz		T _{VJ} = 25°C	3		pF	
I _{RM}	max. reverse recovery current	} I _F = 5 A; V _R = 400 V -di _F /dt = 100 A/μs		T _{VJ} = 25 °C	2		A	
				T _{VJ} = °C	tbd		A	
t _{rr}	reverse recovery time			T _{VJ} = 25 °C	35		ns	
				T _{VJ} = °C	tbd		ns	

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Package TO-220FP				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal				35	A
T_{VJ}	virtual junction temperature			-55		150	°C
T_{op}	operation temperature			-55		125	°C
T_{stg}	storage temperature			-55		150	°C
Weight					2		g
M_D	mounting torque			0.4		0.6	Nm
F_C	mounting force with clip			20		60	N
$d_{Spp/App}$	creepage distance on surface striking distance through air	terminal to terminal	3.2	2.7			mm
$d_{Spb/Apb}$		terminal to backside	2.5	2.5			mm
V_{ISOL}	isolation voltage	t = 1 second	50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	2500			V
		t = 1 minute		2100			V

Product Marking

Part description

D = Diode
 H = Sonic Fast Recovery Diode
 G = extreme fast
 5 = Current Rating [A]
 I = Single Diode
 600 = Reverse Voltage [V]
 PM = TO-220ACFP (2)

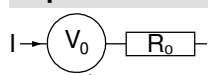
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DHG5I600PM	DHG5I600PM	Tube	50	504026

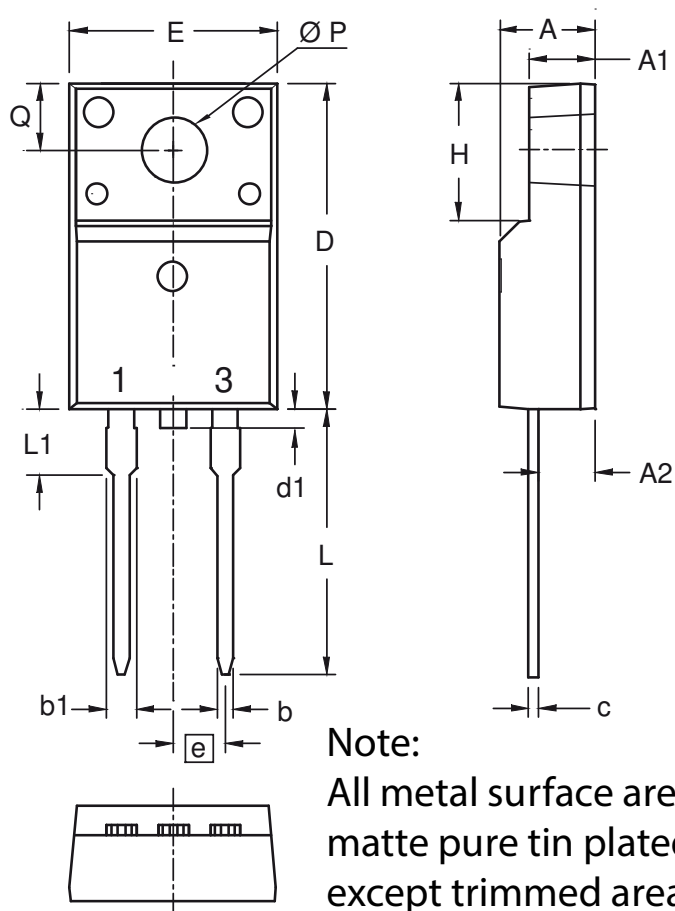
Similar Part	Package	Voltage class
DHG5I600PA	TO-220AC (2)	600

Equivalent Circuits for Simulation

* on die level

 $T_{VJ} = 150^{\circ}\text{C}$

		Fast Diode	
$V_{0\max}$	threshold voltage	1.14	V
$R_{0\max}$	slope resistance *	182	mΩ

Outlines TO-220FP


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.56	2.96	0.101	0.117
b	0.70	0.90	0.028	0.035
b1	1.27	1.47	0.050	0.058
c	0.45	0.60	0.018	0.024
D	15.67	16.07	0.617	0.633
d1	0	1.10	0	0.043
E	9.96	10.36	0.392	0.408
e	2.54 BSC		0.100 BSC	
H	6.48	6.88	0.255	0.271
L	12.68	13.28	0.499	0.523
L1	3.03	3.43	0.119	0.135
ØP	3.08	3.28	0.121	0.129
Q	3.20	3.40	0.126	0.134

