

# **Sonic Fast Recovery Diode**

$V_{\text{RRM}}$	=	1200 V
I <sub>FAV</sub>	=	10 A
t <sub>rr</sub>	=	75 ns

preliminary

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

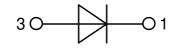
### Part number

DHG10I1200PM



Backside: isolated





#### Features / Advantages:

- Planar passivated chips
- Very low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low Irm-values
- Very soft recovery behaviour
- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low Irm 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
- Pree wheeling didde
  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

#### **Disclaimer Notice**

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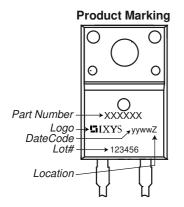
Fast Diode					Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit	
V <sub>RSM</sub>	max. non-repetitive reverse blocki	ng voltage	$T_{VJ} = 25^{\circ}C$			1200	V	
V <sub>RRM</sub>	max. repetitive reverse blocking vo	bltage	$T_{v_J} = 25^{\circ}C$			1200	V	
I <sub>R</sub>	reverse current, drain current	V <sub>R</sub> = 1200 V	$T_{VJ} = 25^{\circ}C$			15	μA	
		V <sub>R</sub> = 1200 V	$T_{v_J} = 125^{\circ}C$			1.2	mA	
VF	forward voltage drop	I <sub>F</sub> = 10 A	$T_{vJ} = 25^{\circ}C$			2.22	V	
		I <sub>F</sub> = 20 A				2.92	V	
		$I_{F} = 10 \text{ A}$	T <sub>vJ</sub> = 125°C			2.13	V	
		I <sub>F</sub> = 20 A				3.06	V	
	average forward current	$T_c = 30^{\circ}C$	T <sub>vJ</sub> = 150°C			10	Α	
		rectangular d = 0.5						
V <sub>F0</sub>	threshold voltage		T <sub>vJ</sub> = 150°C			1.09	V	
r <sub>F</sub>	slope resistance } for power lo	ss calculation only				94	mΩ	
$\mathbf{R}_{thJC}$	thermal resistance junction to case	2				4	K/W	
R thCH	thermal resistance case to heatsin	k			0.5		K/W	
P <sub>tot</sub>	total power dissipation		$T_c = 25^{\circ}C$			30	W	
I <sub>FSM</sub>	max. forward surge current	t = 10 ms; (50 Hz), sine; $V_R = 0 V$	$T_{vJ} = 45^{\circ}C$			65	Α	
C	junction capacitance	$V_{R} = 600 V f = 1 MHz$	$T_{vJ} = 25^{\circ}C$		4		pF	
I <sub>RM</sub>	max. reverse recovery current		$T_{vJ} = 25 °C$		8		Α	
		$I_{\rm F} = 10 \text{ A}; V_{\rm R} = 800 \text{ V}$	T <sub>vj</sub> = °C		tbd		Α	
t <sub>rr</sub>	reverse recovery time	<sub>F</sub> = 10 A; V <sub>R</sub> = 800 V -di <sub>F</sub> /dt = 350 A/μs	$T_{VJ} = 25 ^{\circ}C$		75		ns	
	J		T <sub>vj</sub> = °C		tbd		ns	

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Package	Package TO-220FP					Ratings		
Symbol	Definition	Conditions			min.	typ.	max.	Unit
	RMS current	per terminal					35	Α
T <sub>vj</sub>	virtual junction temperature				-55		150	°C
T <sub>op</sub>	operation temperature				-55		125	°C
T <sub>stg</sub>	storage temperature				-55		150	°C
Weight						2		g
M <sub>D</sub>	mounting torque				0.4		0.6	Nm
F <sub>c</sub>	mounting force with clip				20		60	Ν
d <sub>Spp/App</sub>	creepage distance on surface	ctriking distance through air	terminal to terminal	3.2	2.7			mm
<b>d</b> <sub>Spb/Apb</sub>	creepage uistance on surface	Sunking distance unough an	terminal to backside	2.5	2.5			mm
V	isolation voltage	t = 1 second			2500			V
		t = 1 minute	50/60 Hz, RMS; liso∟ ≤ 1 mA		2100			V



### Part description

D = Diode H = Sonic Fast Recovery Diode

G = extreme fast

10 = Current Rating [A]

- I = Single Diode
- 1200 = Reverse Voltage [V] PM = TO-220ACFP (2)

[	Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
	Standard	DHG10I1200PM	DHG10I1200PM	Tube	50	503672

Similar Part	Package	Voltage class
DHG10I1200PA	TO-220AC (2)	1200

Equivalent Circuits for Simulation			* on die level	$T_{VJ} = 150^{\circ}C$
	)[R	Fast Diode		
V <sub>0 max</sub>	threshold voltage	1.09		V
$\mathbf{R}_{0 \max}$	slope resistance *	91		mΩ

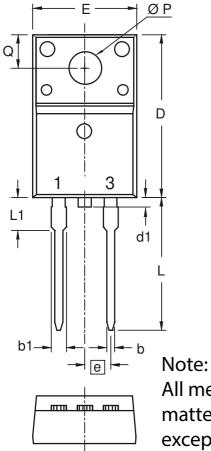
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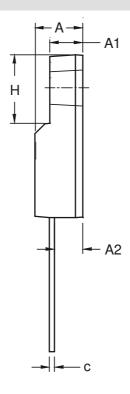
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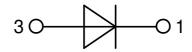
### Outlines TO-220FP





All metal surface are matte pure tin plated except trimmed area.

Dim.	Millim	neters	Incl	hes
Din.	min	max	min	max
Α	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
С	0.45	0.60	0.018	0.024
D	15.67	16.07	0.617	0.633
d1	0	1.10	0	0.043
Е	9.96	10.36	0.392	0.408
е	2.54	BSC	0.100 BSC	
Н	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
ØΡ	3.08	3.28	0.121	0.129
Q	3.20	3.40	0.126	0.134



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