advanced

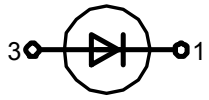
Sonic-FRD

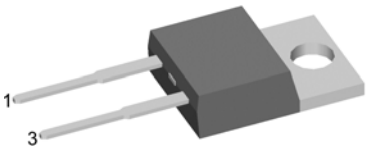
V_{RRM} = 600 V
I_{FAV} = 20 A
t_{rr} = 35 ns

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

Part number

DHG 20 I 600PA





Backside: cathode

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
- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)

Package:

TO-220AC
- Industry standard outline
- Epoxy meets UL 94V-0
- RoHS compliant

Symbol	Definition	Conditions		Ratings min.	typ.	max.	Unit
V_{RRM}	*max. repetitive reverse voltage*		T_{VJ} = 25 °C			600	V
I_R	*reverse current*	V_R = 600 V	T_{VJ} = 25 °C			30	µA
		V_R = 600 V	T_{VJ} = 125 °C			3	mA
V_F	*forward voltage*	I_F = 20 A	T_{VJ} = 25 °C			2.32	V
		I_F = 40 A				3.10	V
		I_F = 20 A	T_{VJ} = 125 °C			2.17	V
		I_F = 40 A				3.03	V
I_{FAV}	*average forward current*	rectangular, d = 0.5	T_C = 90 °C			20	A
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 150 °C			1.31	V
r_F	*slope resistance* }					37.5	mΩ
R_{thJC}	*thermal resistance junction to case*					0.80	K/W
T_{VJ}	*virtual junction temperature*			-55		150	°C
P_{tot}	*total power dissipation*		T_C = 25 °C			155	W
I_{FSM}	*max. forward surge current*	t_p = 10 ms (50 Hz), sine	T_{VJ} = 45 °C			150	A
I_{RM}	*max. reverse recovery current*	I_F = 20 A;	T_{VJ} = 25 °C		8		A
			T_{VJ} = 125 °C				A
t_{rr}	*reverse recovery time*	$-di_F/dt$ = 400 A/µs	T_{VJ} = 25 °C		35		ns
		V_R = 400 V	T_{VJ} = 125 °C				ns
C_J	*junction capacitance*	V_R = 300 V; f = 1 MHz	T_{VJ} = 25 °C		tbd		pF
E_{AS}	*non-repetitive avalanche energy*	I_{AS} = tbd A; L = 100 µH	T_{VJ} = 25 °C			tbd	mJ
I_{AR}	*repetitive avalanche current*	$V_A = 1.5 \cdot V_R$ typ.; f = 10 kHz				tbd	A

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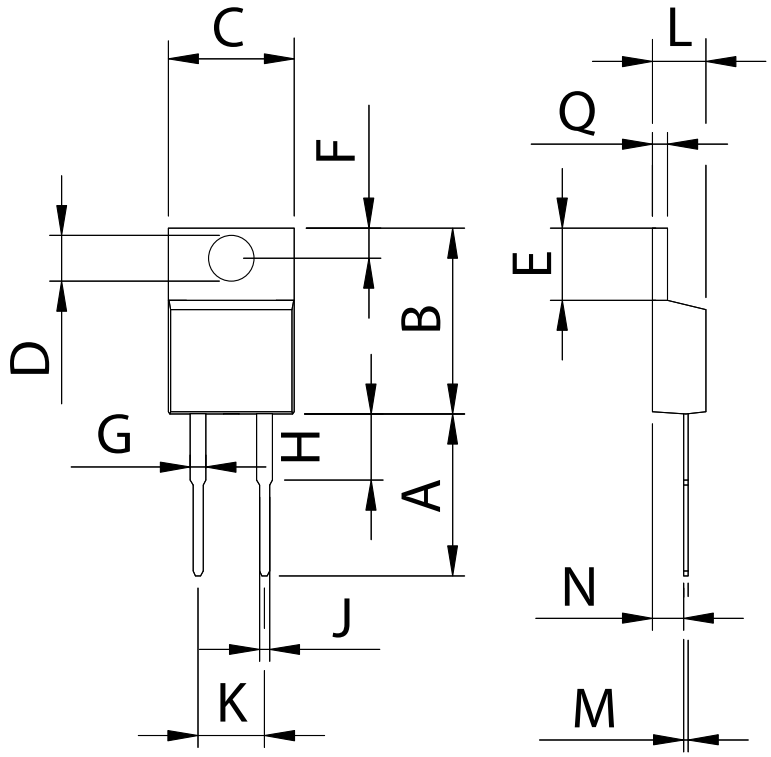
Symbol	Definition	Conditions	Ratings min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per pin*			35	A
R_{thCH}	*thermal resistance case to heatsink*			0.50		K/W
M_D	*mounting torque*		0.4		0.6	Nm
F_C	*mounting force with clip*		20		60	N
T_{stg}	*storage temperature*		-55		150	°C
Weight				2		g

* Irms is typically limited by: 1. pin-to-chip resistance; or by 2. current capability of the chip.
In case of 1, a common cathode/anode configuration and a non-isolated backside, the whole current capability can be used by connecting the backside.

Outlines TO-220AC



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	12.70	14.73	0.500	0.580
B	14.23	16.51	0.560	0.650
C	9.66	10.66	0.380	0.420
D	3.54	4.08	0.139	0.161
E	5.85	6.85	2.300	0.420
F	2.54	3.42	0.100	0.135
G	1.15	1.77	0.045	0.070
H	-	6.35	-	0.250
J	0.64	0.89	0.025	0.035
K	4.83	5.33	0.190	0.210
L	3.56	4.82	0.140	0.190
M	0.51	0.76	0.020	0.030
N	2.04	2.49	0.080	0.115
Q	0.64	1.39	0.025	0.055

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