

Standard Rectifier

$$V_{RRM} = 1600\text{ V}$$

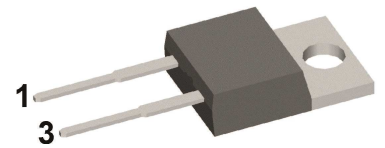
$$I_{FAV} = 10\text{ A}$$

$$V_F = 1.21\text{ V}$$

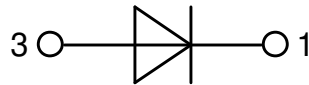
Single Diode

Part number

DMA10I1600PA



Backside: cathode



Features / Advantages:

- Planar passivated chips
- Very low leakage current
- Very low forward voltage drop
- Improved thermal behaviour

Applications:

- Diode for main rectification
- For single and three phase bridge configurations

Package: TO-220

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

Disclaimer Notice

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Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage					1700	V
V_{RRM}	max. repetitive reverse blocking voltage					1600	V
I_R	reverse current	$V_R = 1600$ V	$T_{VJ} = 25^\circ\text{C}$			10	μA
		$V_R = 1600$ V	$T_{VJ} = 150^\circ\text{C}$			0.2	mA
V_F	forward voltage drop	$I_F = 10$ A	$T_{VJ} = 25^\circ\text{C}$			1.26	V
		$I_F = 20$ A				1.53	V
		$I_F = 10$ A	$T_{VJ} = 150^\circ\text{C}$			1.21	V
		$I_F = 20$ A				1.57	V
I_{FAV}	average forward current	$T_C = 150^\circ\text{C}$ rectangular	$T_{VJ} = 175^\circ\text{C}$ d = 0.5			10	A
V_{FO}	threshold voltage	} for power loss calculation only				0.82	V
r_F	slope resistance					37	m Ω
R_{thJC}	thermal resistance junction to case					1.5	K/W
R_{thCH}	thermal resistance case to heatsink				0.5		K/W
P_{tot}	total power dissipation			$T_C = 25^\circ\text{C}$		100	W
I_{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45^\circ\text{C}$			120	A
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			130	A
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150^\circ\text{C}$			100	A
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			110	A
I^2t	value for fusing	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45^\circ\text{C}$			72	A ² s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			70	A ² s
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150^\circ\text{C}$			50	A ² s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			50	A ² s
C_J	junction capacitance	$V_R = 400$ V; f = 1 MHz	$T_{VJ} = 25^\circ\text{C}$		4		pF



Package TO-220			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			25	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
M_D	mounting torque		0.4		0.6	Nm
F_C	mounting force with clip		20		60	N

Product Marking



Part description

- D = Diode
- M = Standard Rectifier
- A = (up to 1800V)
- 10 = Current Rating [A]
- I = Single Diode
- 1600 = Reverse Voltage [V]
- PA = TO-220AC (2)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DMA10I1600PA	DMA10I1600PA	Tube	50	508780

Similar Part	Package	Voltage class
DMA10IM1600PZ	TO-263AB (D2Pak) (2HV)	1600

Equivalent Circuits for Simulation

* on die level

$T_{VJ} = 175^{\circ}\text{C}$

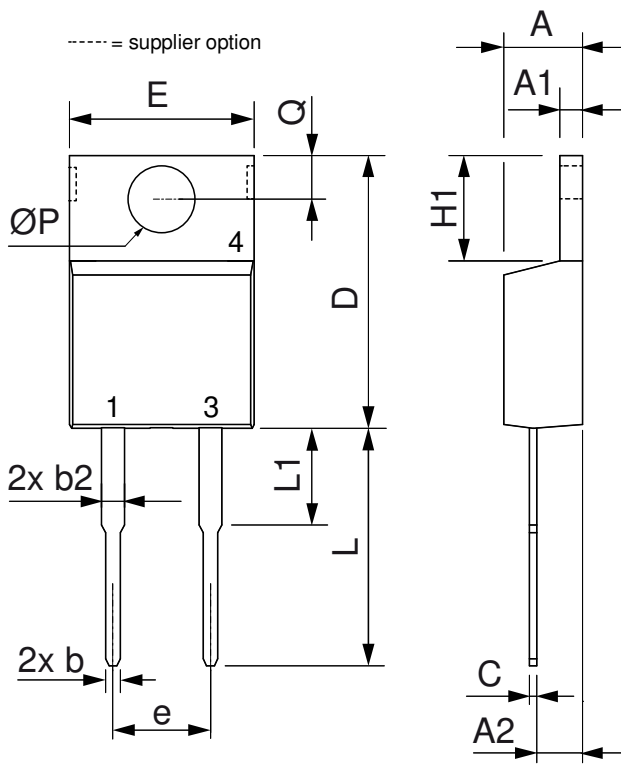


Rectifier

$V_{0\ max}$	threshold voltage	0.82	V
$R_{0\ max}$	slope resistance *	34	mΩ



Outlines TO-220



Dim.	Millimeter		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

