

# DATA SHEET

TYPE: 300A/400V

Package: Full Bridge Module

Prepared by	Audit by	Approved by

# FRD Half Bridge Module

**VRRM = 400V**

**IFAV = 300A**

**V<sub>F</sub> = 1.2V**

**TRR = 70ns**

**Product Applications:**

- Switch mode Power Supply
- Inverters
- Free Wheeling Diode
- Motor Controllers
- Converters
- Inverters
- Snubber Diode
- PFC

**Product Features:**

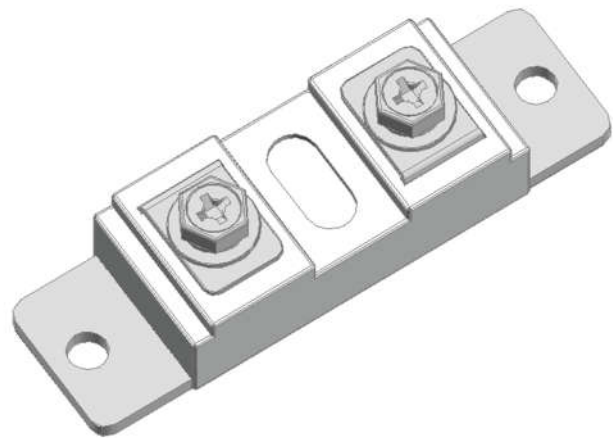
- Ultrafast Recovery Times
- Soft Recovery Characteristics
- Popular Module Package
- Low Forward Voltage
- Low Leakage Current
- Avalanche Energy Rated

**Product Benefits:**

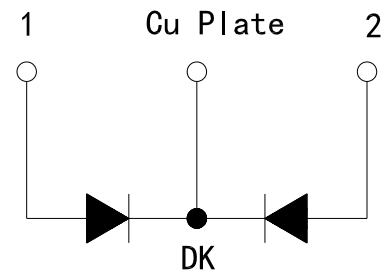
- Low Losses
- Low Noise Switching
- Cooler Operation
- Higher Reliability Systems
- Increased System Power Density

**Package:**

**MFDK300A40**



**Circuit diagram**



..

**MAXIMUM RATINGS**

All Ratings: Tc = 25° C unless otherwise specified.

Symbol	Characteristic / Test Conditions	TYP	UNIT
VR	Maximum D.C. Reverse Voltage	400	Volts
VRRM	Maximum Peak Repetitive Reverse Voltage		
IF(AV)	Maximum Average Forward Current (Tc = 100°C, Per Diode)	150	Amps
	Maximum Average Forward Current (Tc = 100°C, Per Moudle)	300	
IFSM	Non-Repetitive Forward Surge Current (TJ = 25°C, 8.3ms)	1800	
TJ	Junction Temperature	-55 to 150	° C
TSTG	Storage Temperature Range	-55 to 125	
TL	Lead Temperature for 10 Sec	260	

**STATIC ELECTRICAL CHARACTERISTICS**

Symbol	Characteristic / Test Conditions	TYP	MAX	UNIT	
VF	Forward Voltage	IF = 150A, Tj = 25°C	1.2	1.4	Volts
		IF = 150A, Tj = 150°C	1.1	1.25	
IRM	Maximum Reverse Leakage Current	VR = 400V, Tj =25°C		10	μ A
		VR = 400V, Tj =150°C		500	
Trr	Reverse Recovery Time	IF=0.5A    IRM=1A IRR=0.25A    TC=25°C	70	80	ns
		IF=0.5A    IRM=1A IRR=0.25A    TC=125°C	130	150	
CJ	Junction Capacitance, VR =200V	35		pF	

**THERMAL AND MECHANICAL CHARACTERISTICS**

Symbol	Characteristic / Test Conditions	MFDK300A40	UNIT
R <sub>θJC</sub>	Junction-to-Case Thermal Resistance	0.4	°C/W
WT	Package Weight	105	g
Torque	Maximum Mounting Torque	5	N.m

TYPICAL PERFORMANCE CURVES

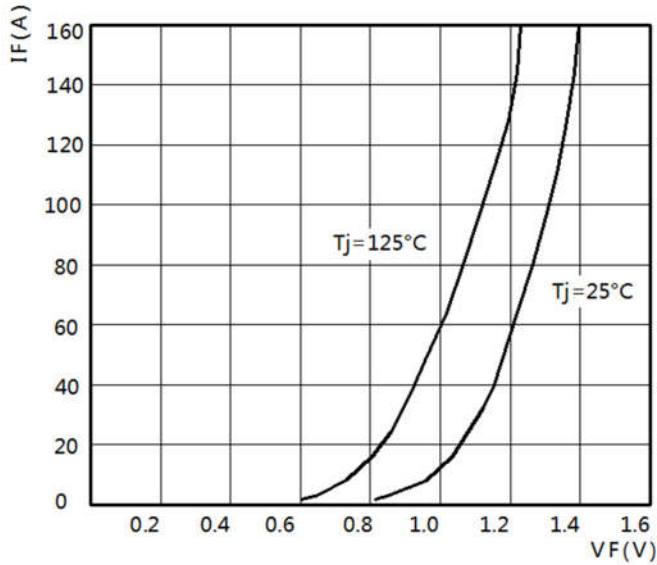


FIGURE 1. FORWARD CURRENT vs FORWARD VOLTAGE

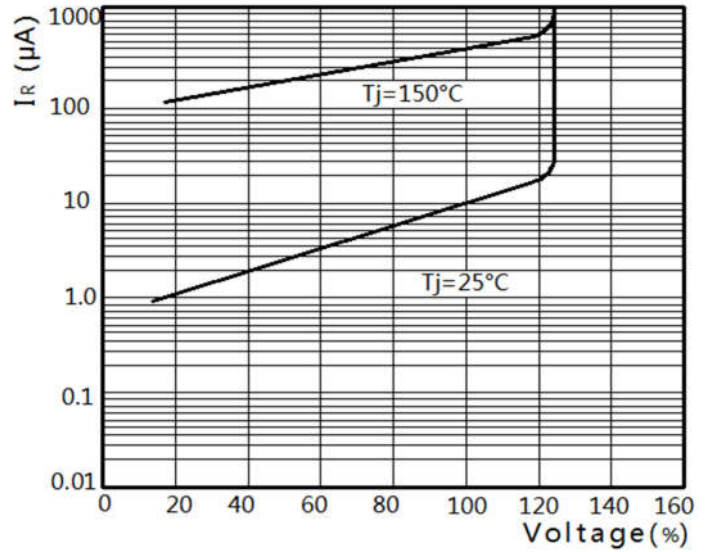


FIGURE 2. REVERSE CURRENT vs REVERSE VOLTAGE

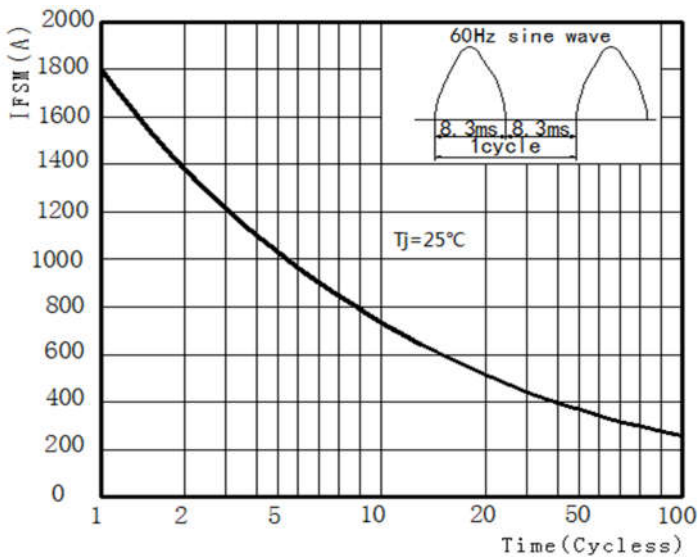


FIGURE 3. Peak Surge Forward Capability

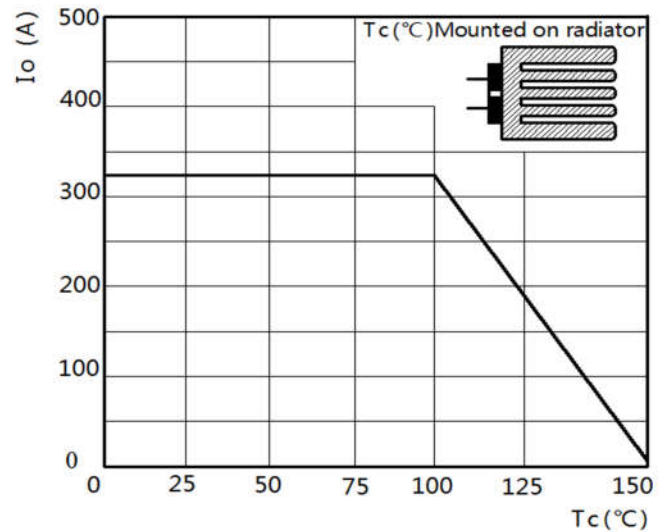


FIGURE 4. CURRENT DERATING CURVE

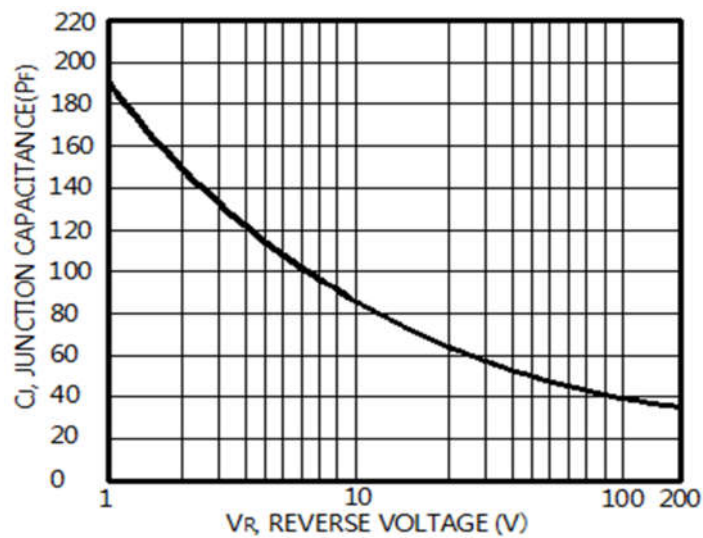
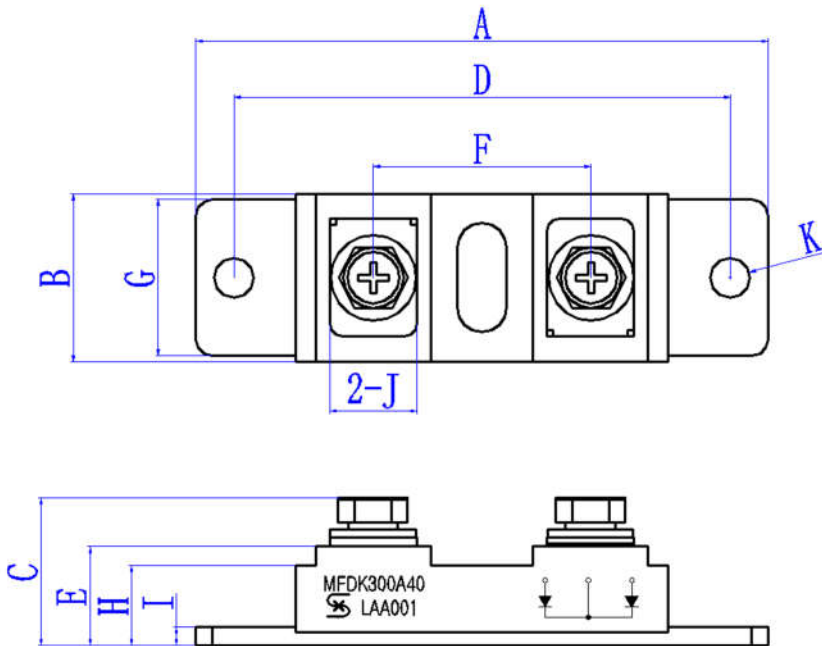


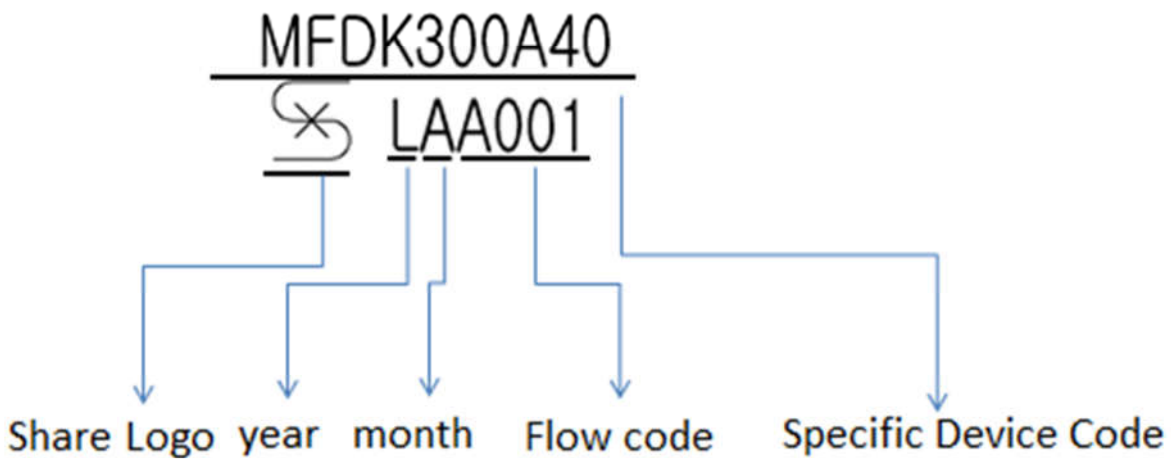
FIGURE 5. JUNCTION CAPACITANCE vs REVERSE VOLTAGE

Dimensioned drawing



Dim.	Millimeter		Inches	
	min	max	min	max
A	91.5	92.5	3.602	3.642
B	26.5	27.5	1.043	1.083
C	23.4	24.4	0.921	0.961
D	79.5	80.5	3.130	3.169
E	15.5	16.5	0.610	0.650
F	34.6	35.6	1.362	1.402
G	24.7	25.7	0.972	1.012
H	12.5	13.5	0.492	0.531
I	2.8	3.2	0.110	0.126
J	13.8	14.2	0.543	0.559
K	6.3	6.5	0.248	0.256

Marking



变更履历

---

序号	变更内容	更改原因	版本	变更人	更改时间
1	新增	新增	0	赵朝思	2020.06.13