

DF2005 THRU DF210

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DF2005 THRU DF210

2.0A Glass Passivated Single-Phase Bridge Rectifiers-50-1000V

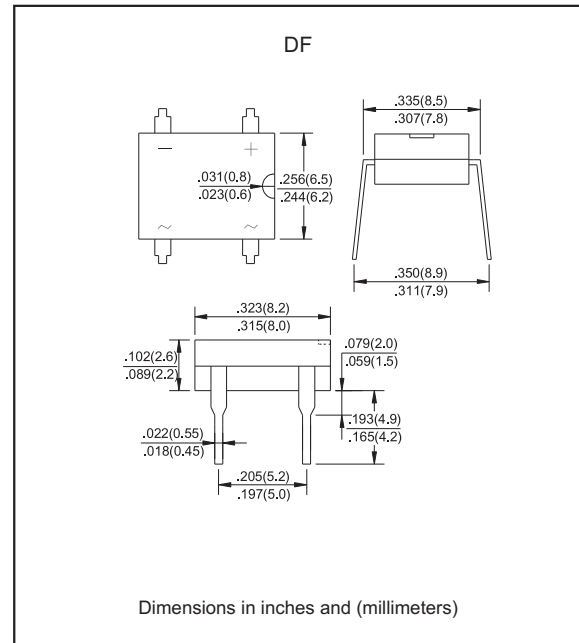
Features

- Surge overload ratings to 60 amperes peak.
- Recommended for non-automatic applications.
- Ideal for & save space on printed circuit board.
- Applicable for automatic insertion.
- Reliable low cost construction utilizing molded plastic technology results in inexpensive product.
- Glass passivated chip junctions.
- Lead-free parts meet RoHS requirements.
- UL recognized file # E321971
- Suffix "-H" indicates Halogen-free part, ex.DF2005-H.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, DF
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : marked on body
- Mounting Position : Any
- Weight : Approximated 0.38 gram

Package outline



Maximum ratings and Electrical Characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Forward rectified current	See Fig.1	I_O			2.0	A
Forward surge current	8.3ms single half sine-wave superimposed on rate load (JEDEC methode)	I_{FSM}			60	A
Reverse current	$V_R = V_{RRM} \quad T_J = 25^{\circ}\text{C}$	I_R			10	uA
	$V_R = V_{RRM} \quad T_J = 125^{\circ}\text{C}$				500	
I^2t Rating for Fusing	$t < 8.3\text{ms}$	I^2t			15	A^2s
Typical Junction Capacitance Per Element	Measured at 1.0MHz and applied reverse voltage of 4.0V DC	C_J		25		pF
Typical thermal resistance	Junction to ambient mounted on P.C.B with 0.5*0.5"(13*13mm) copper pads.	$R_{\theta JA}$		40		$^{\circ}\text{C/W}$
Storage temperature		T_{STG}	-65		+175	$^{\circ}\text{C}$

SYMBOLS	V_{RRM}^{*1} (V)	V_{RMS}^{*2} (V)	V_R^{*3} (V)	V_F^{*4} (V)	Operating temperature T_J , ($^{\circ}\text{C}$)
DF2005	50	35	50	1.10	-55 to +150
DF201	100	70	100		
DF202	200	140	200		
DF204	400	280	400		
DF206	600	420	600		
DF208	800	560	800		
DF210	1000	700	1000		

*1 Repetitive peak reverse voltage

*2 RMS voltage

*3 Continuous reverse voltage

*4 Maximum forward voltage@ $I_F=2.0\text{A}$

Rating and characteristic curves (DF2005 THRU DF210)

FIG.1-DERATING CURVE FOR
OUTPUT RECTIFIED CURRENT

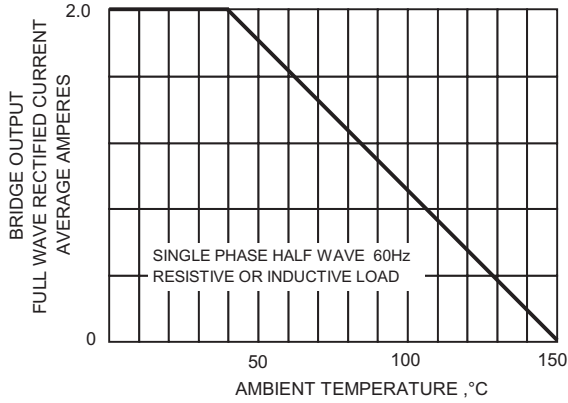


FIG.2-MAXIMUM NON-REPETITIVE PEAK
FORWARD SURGE CURRENT

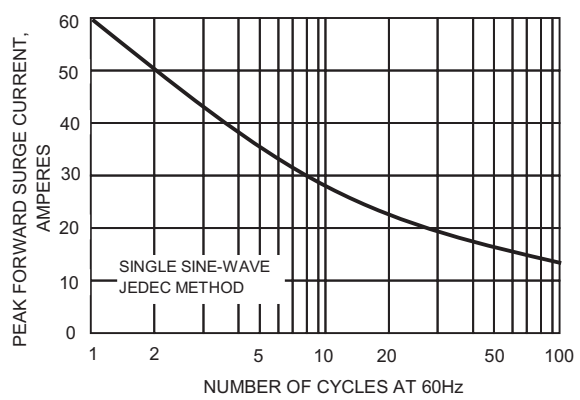


FIG.3-TYPICAL JUNCTION CAPACITANCE

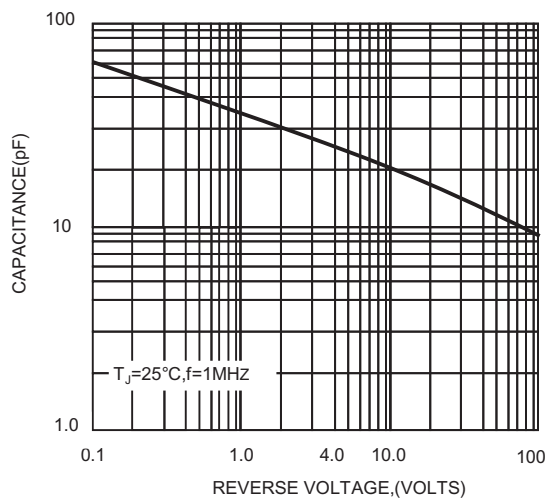


FIG.4-TYPICAL FORWARD CHARACTERISTICS

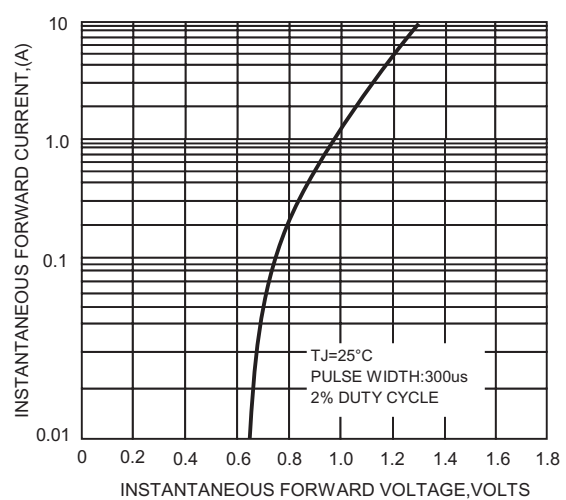
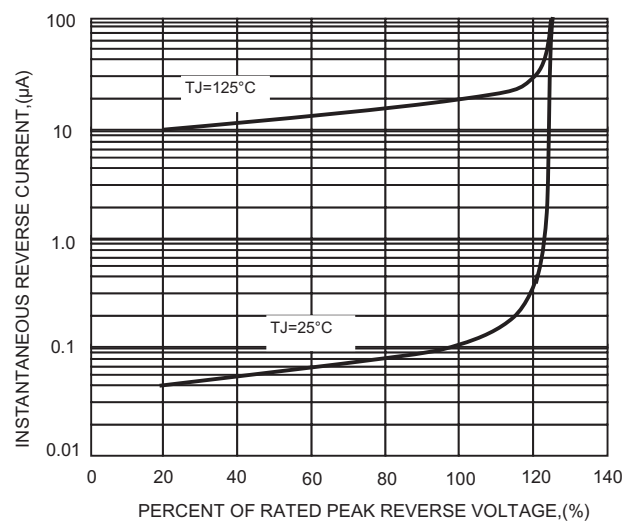
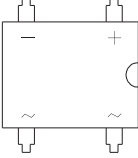
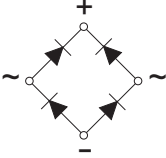


FIG.5-TYPICAL REVERSE CHARACTERISTICS



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Pinning information

Simplified outline	Symbol
	

Marking

Type number	Marking code
DF2005	DF2005
DF201	DF201
DF202	DF202
DF204	DF204
DF206	DF206
DF208	DF208
DF210	DF210

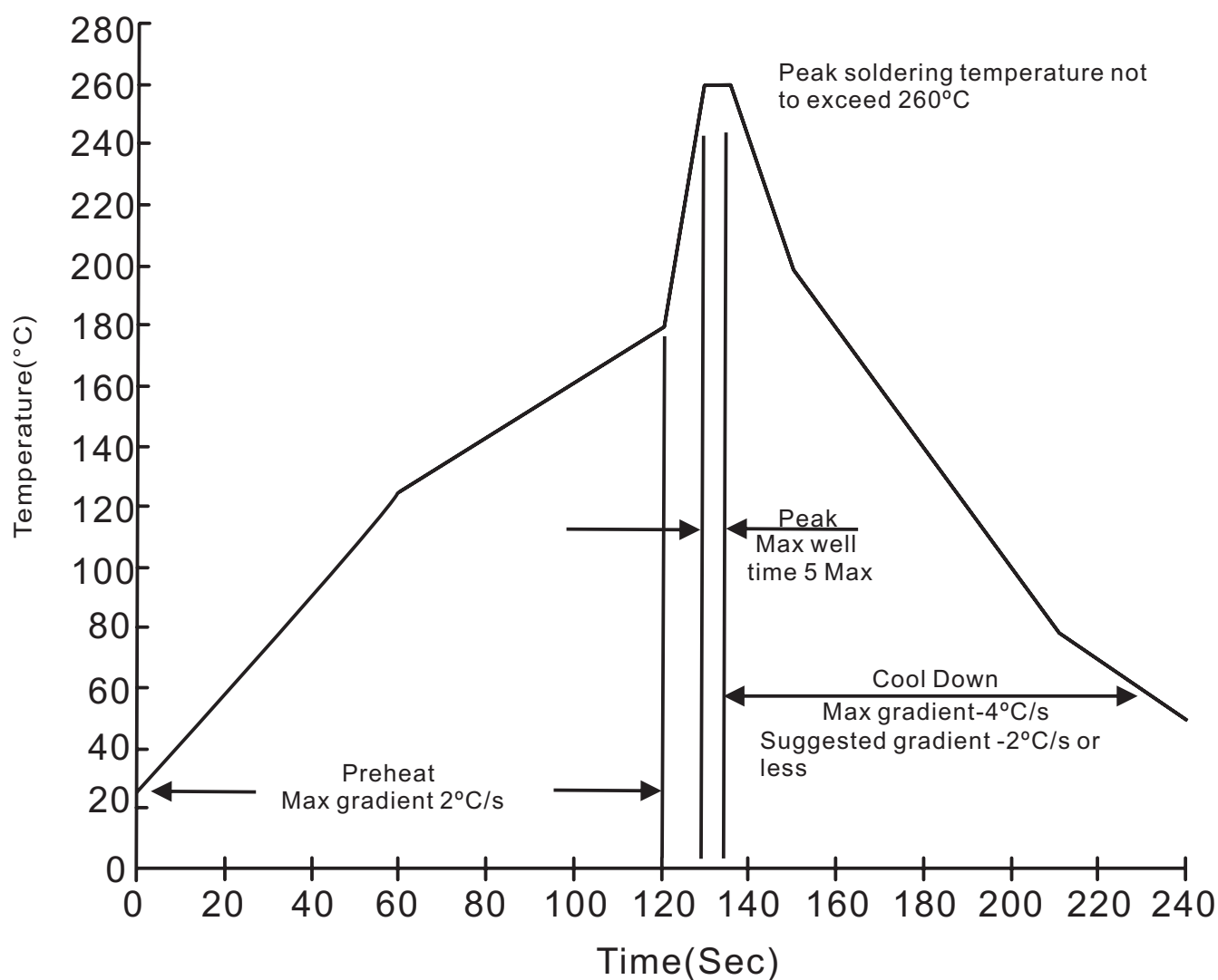
Tube packing

PACKAGE	TUBE (pcs)	TUBE SIZE (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
DF	50	420*12.0*9.9	452*164*130	5,000	3.0

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Suggested thermal profiles for soldering processes

1. Lead free temperature profile wave-soldering



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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^{\circ}\text{C}$ for $10 \pm 2\text{sec.}$ immerse body into solder $1/16" \pm 1/32"$	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^{\circ}\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R = 80\%$ rate at $T_J = 150^{\circ}\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at $T_A = 25^{\circ}\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	$T_A = 25^{\circ}\text{C}$, $I_F = I_O$ On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	$15P_{SIG}$ at $T_A = 121^{\circ}\text{C}$ for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to $+125^{\circ}\text{C}$ dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Thermal Shock	0°C for 5 min. rise to 100°C for 5 min. total 10 cycles.	MIL-STD-750D METHOD-1056
9. Forward Surge	8.3ms single half sine-wave superimposed on rated load, one surge.	MIL-STD-750D METHOD-4066-2
10. Humidity	at $T_A = 85^{\circ}\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
11. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031