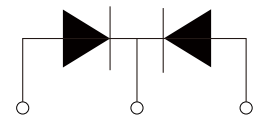
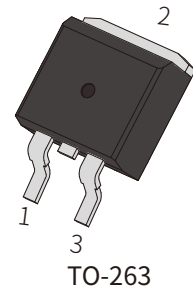


## FEATURES

- | Low Power Loss. High efficiency. High Surge capacity
- | For Use In Low Voltage, High Frequency Inverters, Free Wheeling, And Polarity Protection Applications
- | Metasilicon junction, majority carrier conduction
- | High Current Capability. Low Forward Voltage Drop
- | Guard Ring For Over Voltage Protection



Schematic Symbol

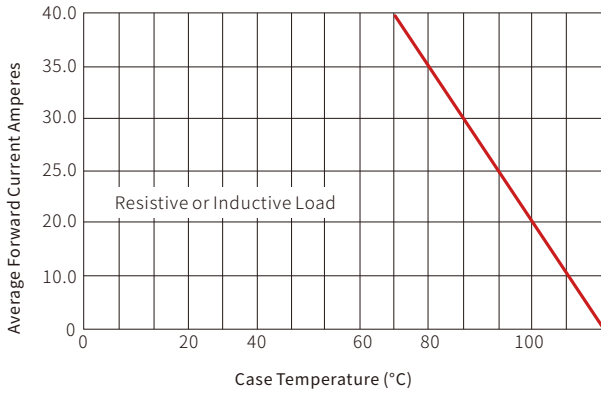
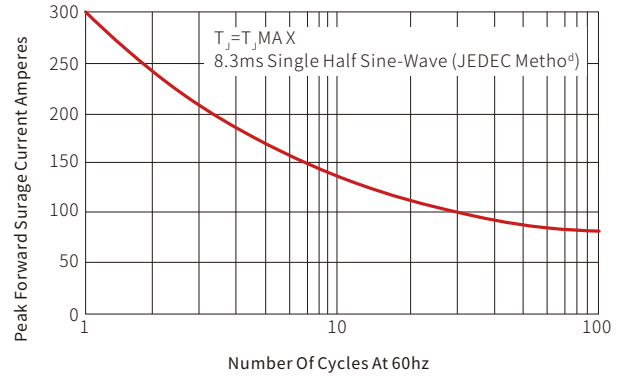
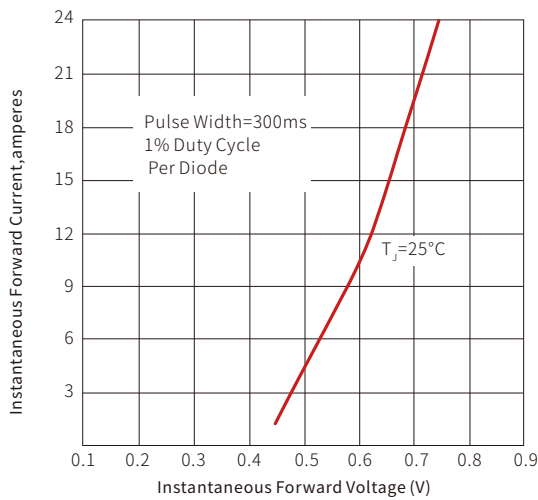
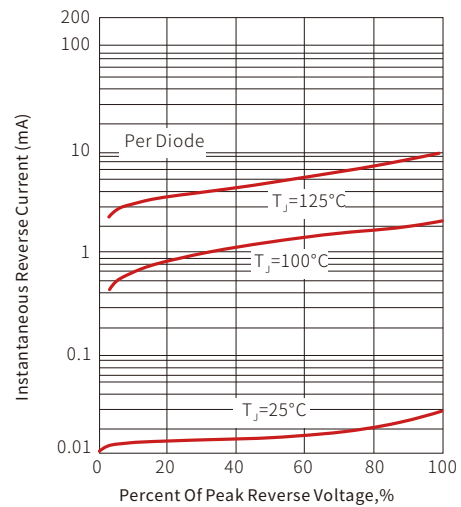
## APPROVALS

<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003

## MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ )

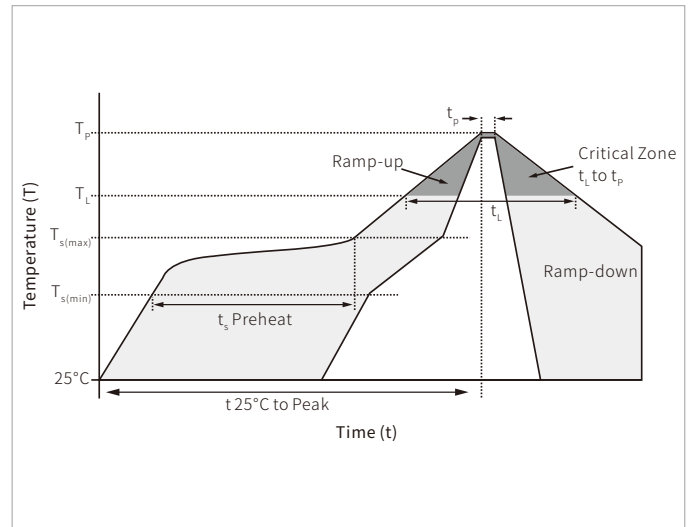
Parameter	Symbol	MBRF 4040 VCT	MBRF 4045 VCT	MBRF 4050 VCT	MBRF 4060 VCT	MBRF 4080 VCT	MBRF 4090 VCT	MBRF 40100 VCT	MBRF 40150 VCT	MBRF 40200 VCT	Unit
Marking		MBR 4040	MBR 4045	MBR 4050	MBR 4060	MBR 4080	MBR 4090	MBR 40100	MBR 40150	MBR 40200	
Maximum Repetitive Peak Reverse Voltage	$V_{RRM}$	40	45	50	60	80	90	100	150	200	V
Maximum RMS Voltage	$V_{RMS}$	28	31.5	35	42	56	63	70	105	140	V
Maximum DC Blocking Voltage	$V_{DC}$	40	45	50	60	80	90	100	150	200	V
Maximum Average Forward Current	$I_{F(AV)}$	40									A
Peak Forward Surge Current: 8.3ms Single Half Sine-wave Superimposed On Rated Load (Jedec Method)	$I_{FSM}$	400									A
Maximum Forward Voltage at 20A Per Leg	$V_F$	0.53		0.58		0.82		0.90			V
Maximum DC Reverse Current at Rated DC Blocking Voltage	$T_J=25^{\circ}\text{C}$	0.1						0.05			mA
	$T_J=125^{\circ}\text{C}$	20									mA
Typical Thermal Resistance	$R_{\theta JC}$	1.3									$^{\circ}\text{C}/\text{W}$
Maximum Operating Junction Temperature	$T_J$	150				175					$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 to +150				-65~+175					$^{\circ}\text{C}$

# CHARACTERISTIC CURVES

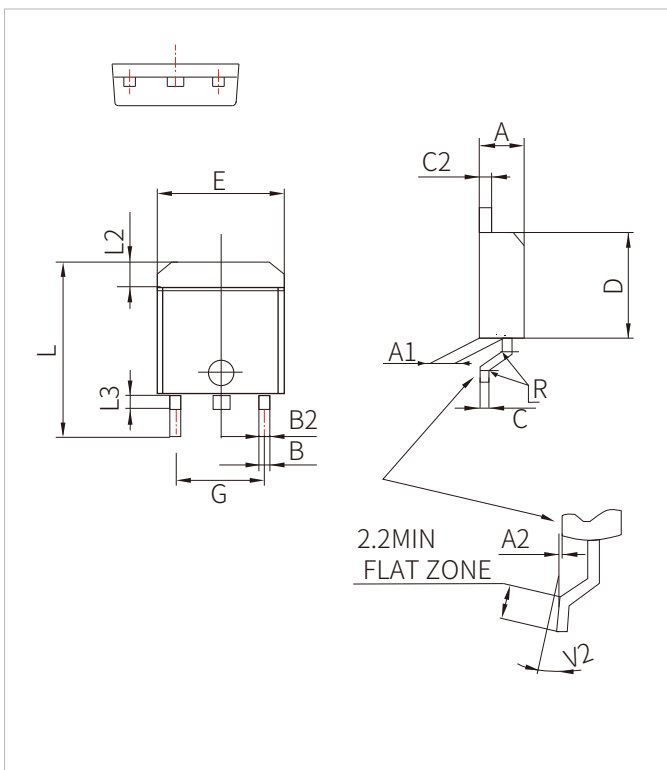
**Fig. 1- Forward Current Derating Curve**

**Fig. 2- Maximum Non-repetitive Peak Forward Surge Current Perleg**

**Fig. 3- Typical Instantaneous Forward Characteristics**

**Fig. 4- Typical Reverse Characteristics**


## SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ( $T_{s(min)}$ )	150°C
	Temperature Max ( $T_{s(max)}$ )	200°C
	Time (min to max) ( $t_s$ )	60 – 180 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/second max
Reflow	Temperature ( $T_L$ ) (Liquidus)	217°C
	Time (min to max) ( $t_l$ )	60 – 150 seconds
Peak Temperature ( $T_p$ )		260°C
Time within 5°C of actual peak Temperature ( $t_p$ )		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature ( $T_p$ )		8 minutes max.
Do not exceed		260°C



## TO-263 PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.30		4.60	0.169		0.181
A1	2.49		2.69	0.098		0.106
A2	0.03		0.23	0.001		0.009
B	0.70		0.93	0.027		0.037
B2	1.25	1.40		0.048	0.055	
C	0.45		0.60	0.017		0.024
C2	1.21		1.36	0.047		0.054
D	8.95		9.35	0.352		0.368
E	10.00		10.28	0.392		0.405
G	4.88		5.28	0.192		0.208
L	15.00		15.85	0.590		0.624
L2	1.27		1.40	0.050		0.055
L3	1.40		1.75	0.055		0.069
R		0.40			0.016	
V2	0°		8°	0°		8°

## ORDERING INFORMATION

Part Number	Package	QTY/Reel	Reel Size
MBRF4040VCT-MBRF40200VCT	TO-263	800PCS	13"

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**By QR Code**

Website



Wechat

To find your local partner within Semiware' s global website: [www.semiware.com](http://www.semiware.com)

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