SHINDENGEN

Schottky Rectifiers (SBD)

Dual

DF30SC4M

40V 30A

FEATURES

SMT

Tj150

P$_{RRSM}$ avalanche guaranteed

High current capacity with Small Package

### APPLICATION

Switching power supply

DC/DC converter

Home Appliances, Office Equipment

Telecommunication

## OUTLINE DIMENSIONS

Case : STO-220

Unit : mm
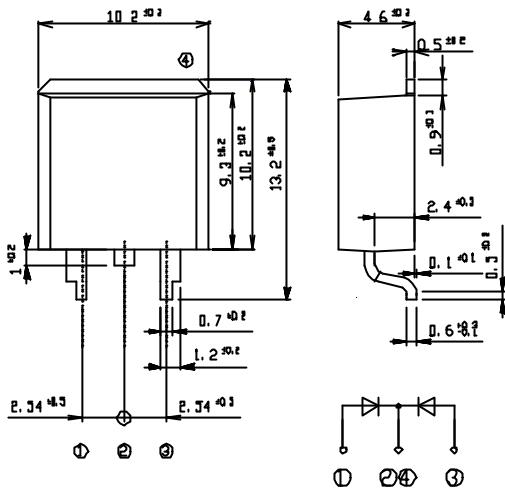
RATINGS

Absolute Maximum Ratings (If not specified Tc=25)

| Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	Tstg		-40 150	
Operating Junction Temperature	Tj		150	
Maximum Reverse Voltage	V$_{RM}$		40	V
Repetitive Peak Surge Reverse Voltage	V$_{RRSM}$	Pulse width 0.5ms, duty 1/40	45	V
Average Rectified Forward Current	I$_O$	50Hz sine wave, R-load, Rating for each diode Io/2, Tc=112	30	A
Peak Surge Forward Current	I$_{FSM}$	50Hz sine wave, Non-repetitive 1 cycle peak value, Tj=25	360	A
Repetitive Peak Surge Reverse Power	P$_{RRSM}$	Pulse width 10µs, Rating of per diode, Tj= 25	1000	W

Electrical Characteristics (If not specified Tc=25)

Item	Symbol	Conditions	Ratings	Unit
Forward Voltage	V$_F$	I$_F$=15A, Pulse measurement, Rating of per diode	Max. 0.55	V
Reverse Current	I$_R$	V$_R$=V$_{RM}$ Pulse measurement, Rating of per diode	Max. 10	mA
Junction Capacitance	C$_j$	f=1MHz, V$_R$=10V, Rating of per diode	Typ. 590	pF
Thermal Resistance	jc	junction to case	Max. 1.6	/W

DF30SC4M   Forward Voltage

Forward Current I_F [A]

10

1

Tc=150°C [MAX]

Tc=150°C [TYP]

Tc=25°C [MAX]

Tc=25°C [TYP]

Pulse measurement per diode

0   0.2   0.4   0.6   0.8   1

Forward Voltage V_F [V]
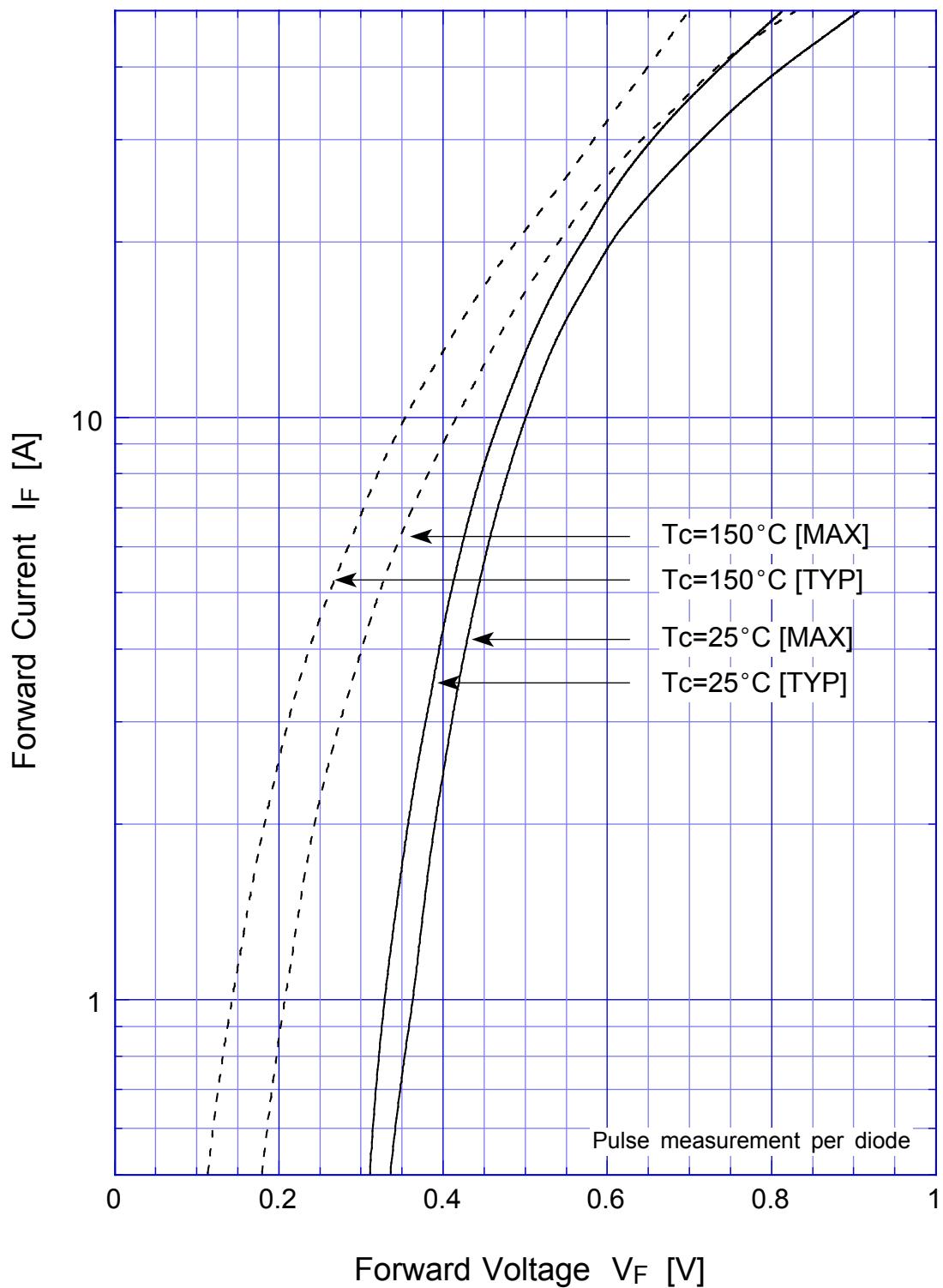
DF30SC4M   Junction Capacitance

f=1MHz
Tc=25°C
TYP
per diode

Junction Capacitance Cj [pF]

Reverse Voltage V$_R$ [V]
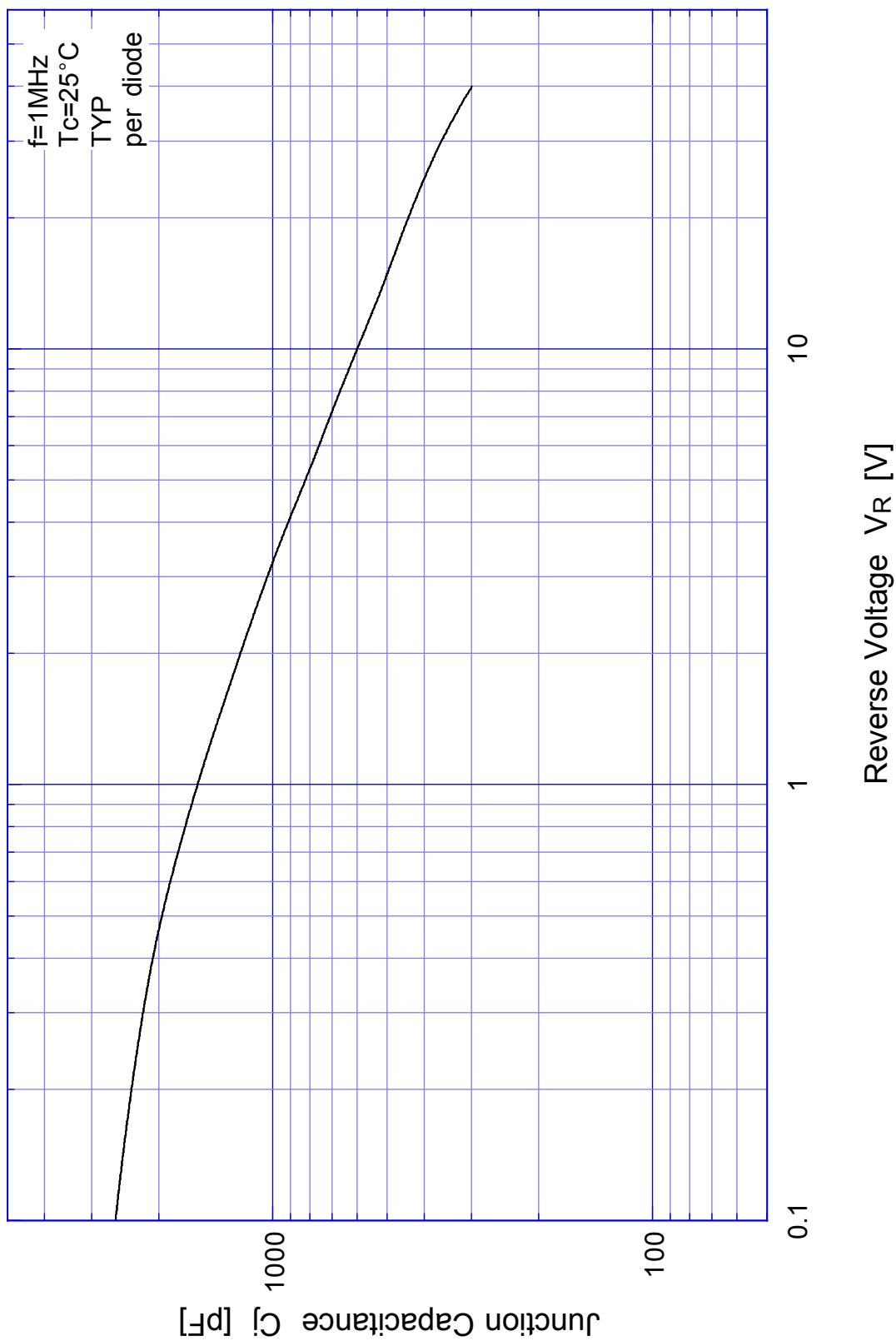
DF30SC4M   Reverse Current

Tc=150°C [MAX]

Tc=150°C [TYP]

Tc=125°C [TYP]

Tc=100°C [TYP]

Tc=75°C [TYP]

Pulse measurement per diode

Reverse Current I_R [mA]

Reverse Voltage V_R [V]
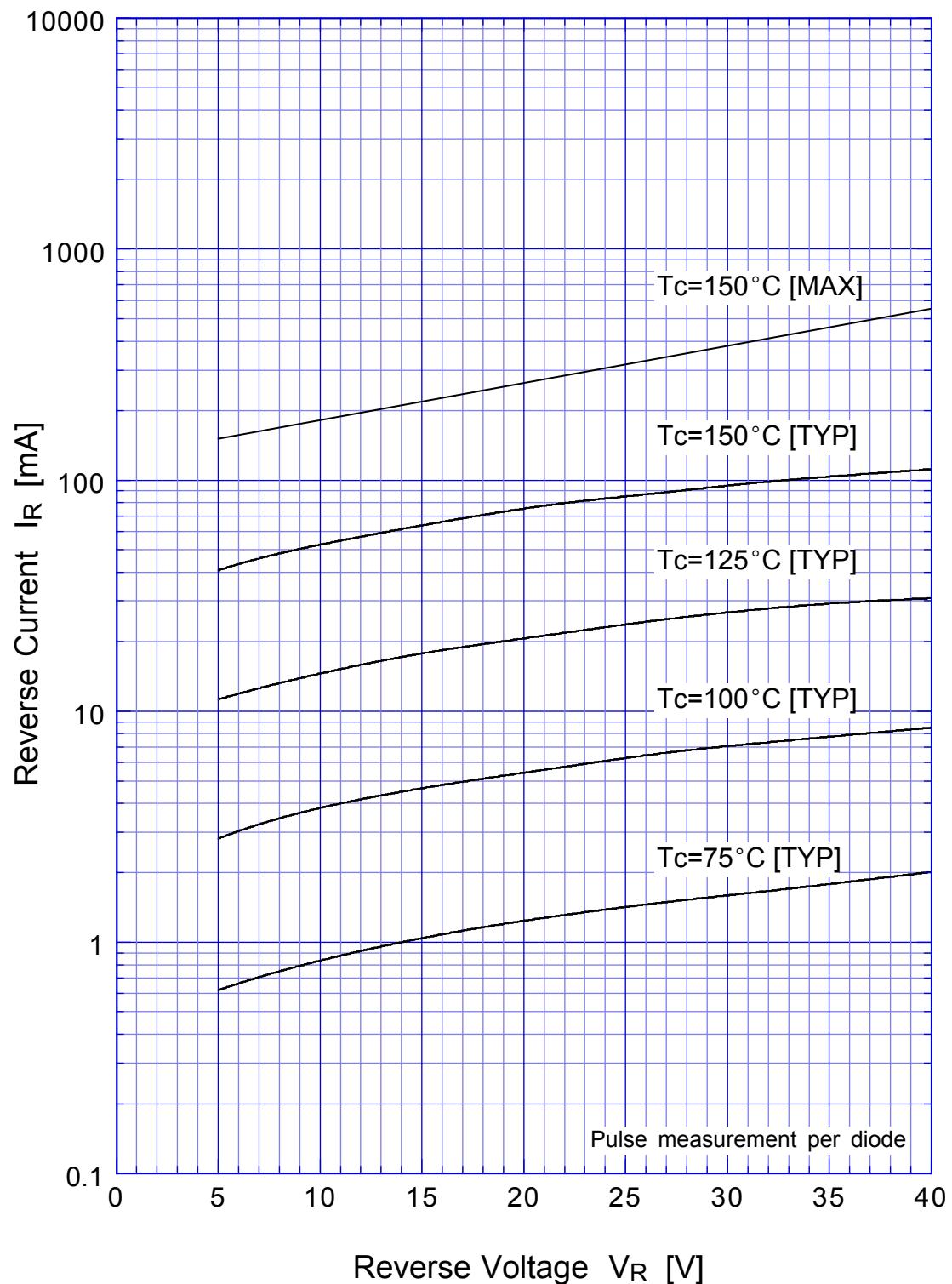
DF30SC4M Reverse Power Dissipation

Reverse Power Dissipation P_R [W] vs Reverse Voltage V_R [V]

Curves labeled: DC, D=0.05, 0.1, 0.2, 0.3, 0.5, SIN, 0.8

$T_j = 150°C$

$D = t_p / T$
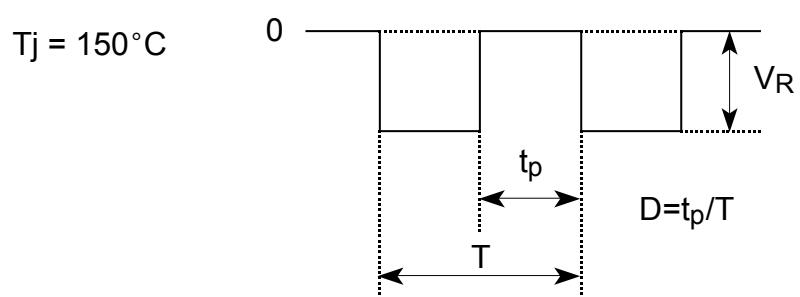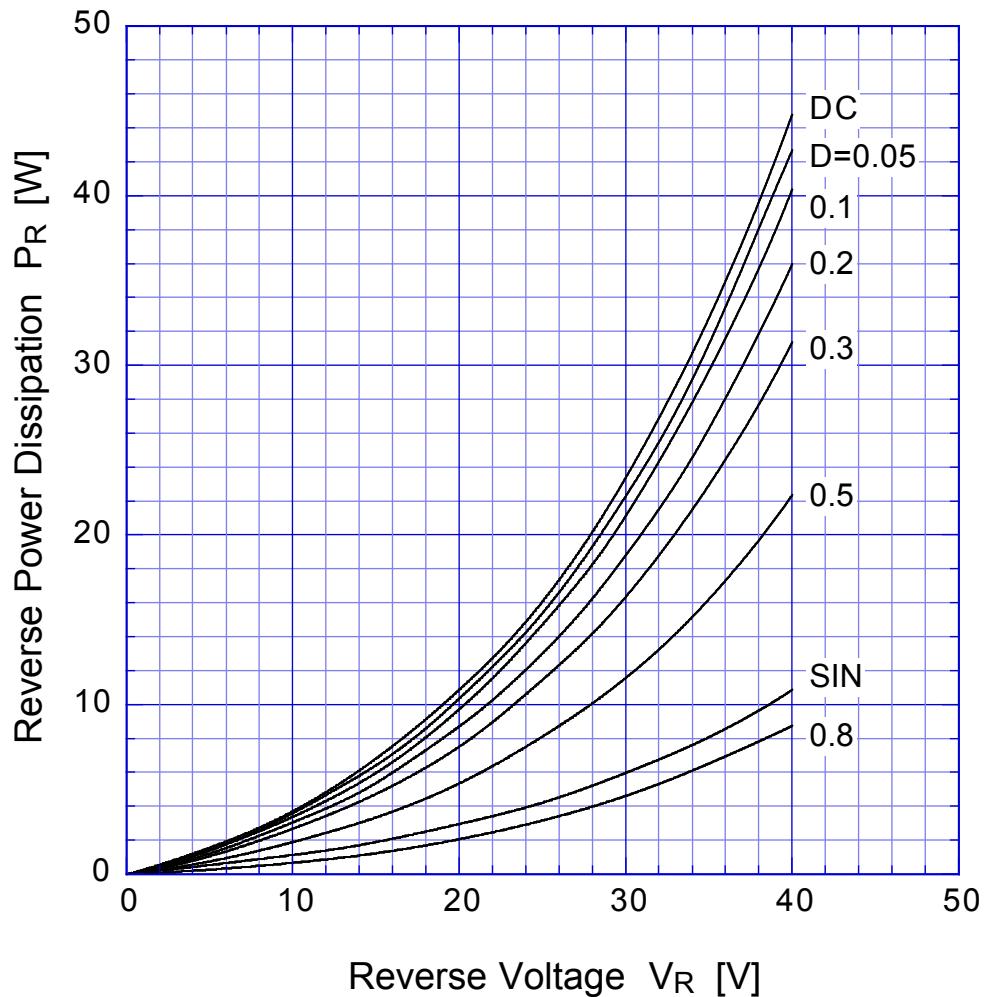
DF30SC4M Forward Power Dissipation

Forward Power Dissipation P_F [W] vs Average Rectified Forward Current I_O [A]

Curves: 0.05, 0.1, 0.2, 0.3, SIN, 0.5, D=0.8, DC

Tj = 150°C

$D = t_p / T$

DF30SC4M   Derating Curve

Average Rectified Forward Current I_O [A] vs Case Temperature Tc [°C]

Curve labels: DC, D=0.8, 0.5, SIN, 0.3, 0.2, 0.1, 0.05

$V_R = 20V$

$D = t_p/T$
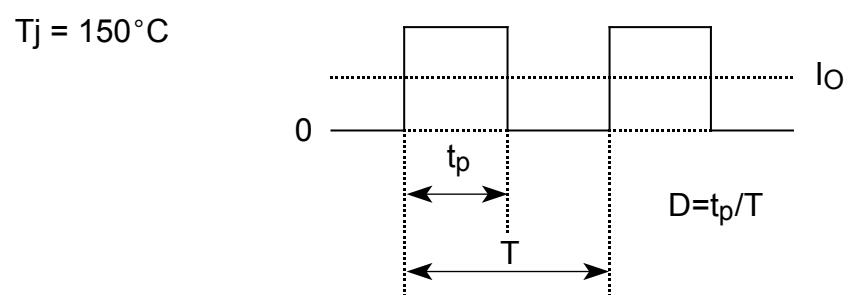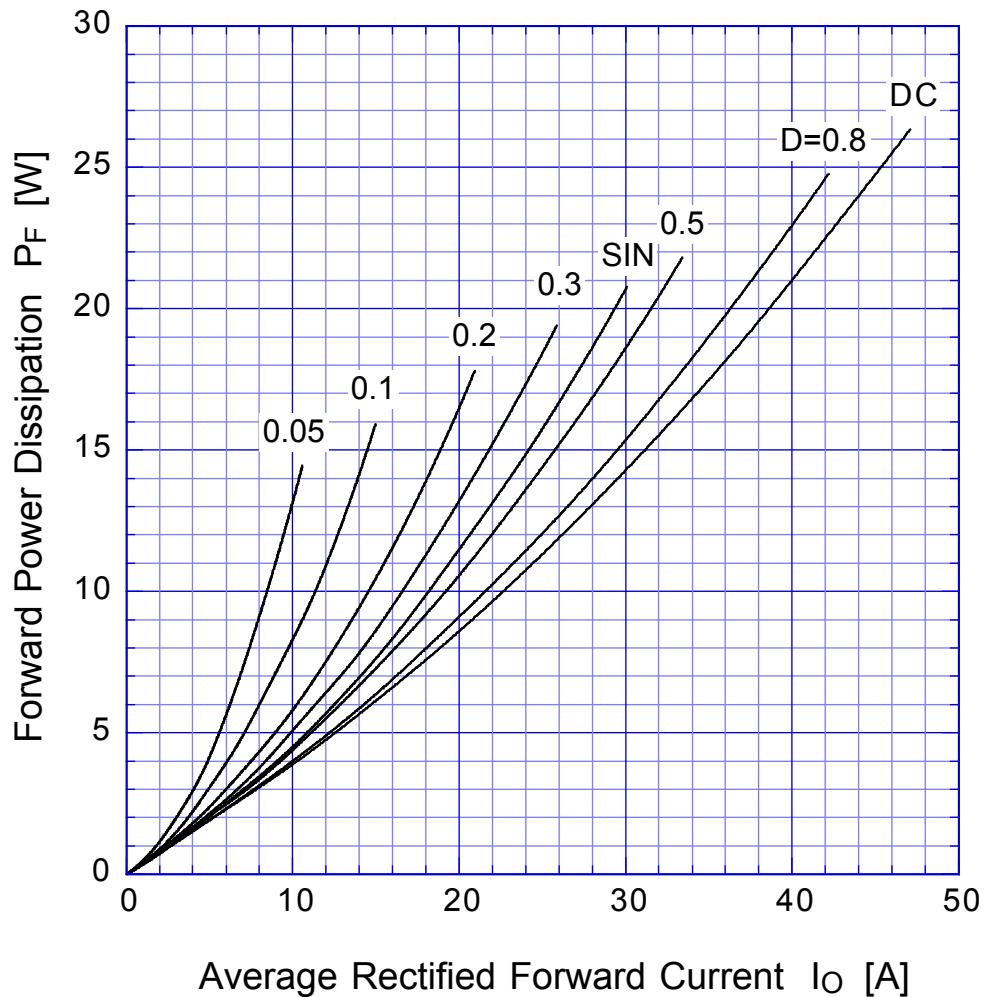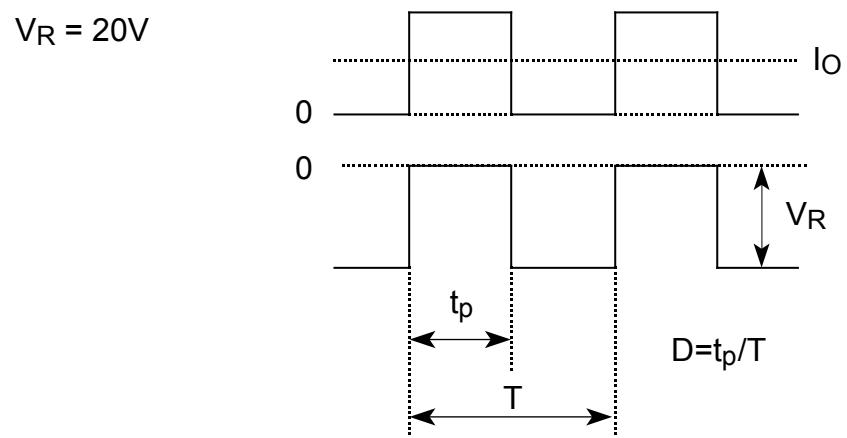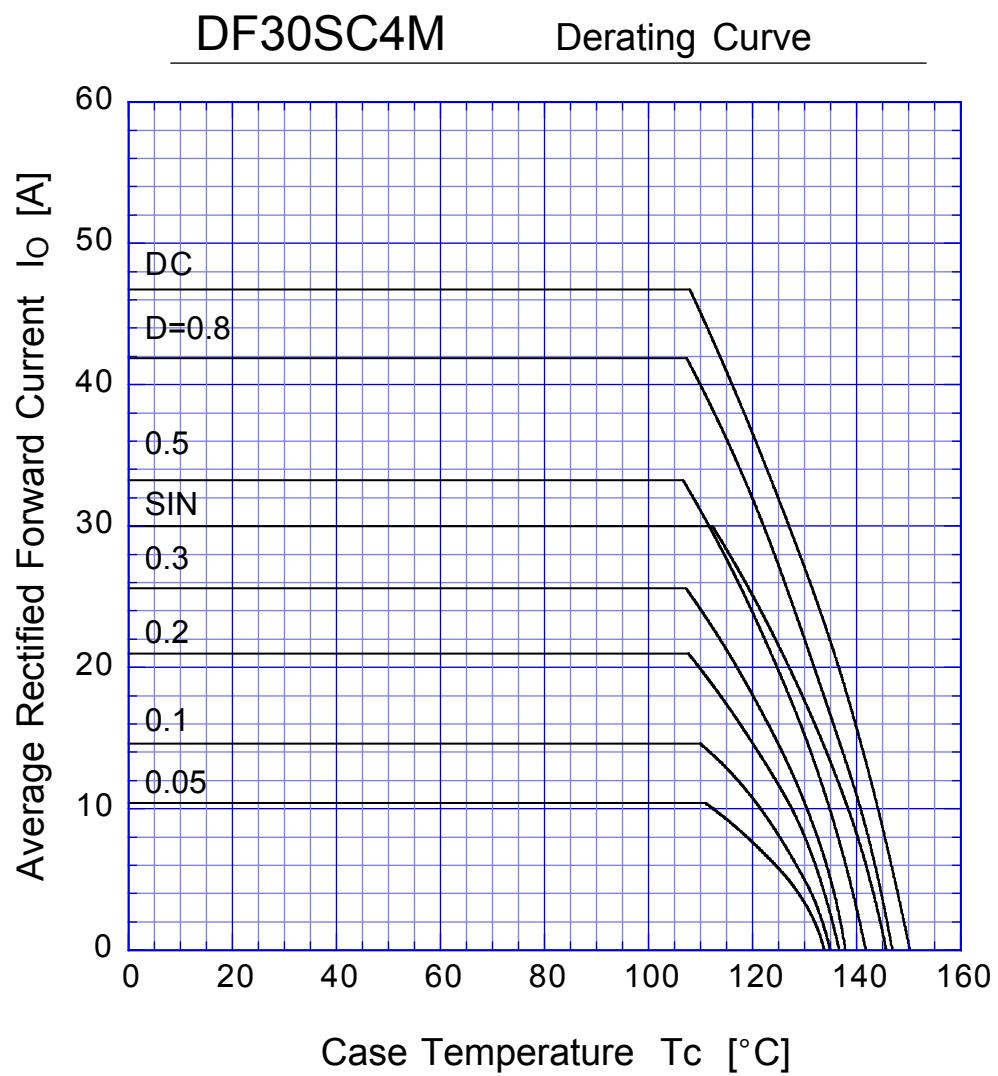
DF30SC4M   Peak Surge Forward Capability

Peak Surge Forward Current I_{FSM} [A]

Number of Cycles [cycles]

I_{FSM}

10ms 10ms

1 cycle

non-repetitive,
sine wave,
Tj=25°C before
surge current is applied
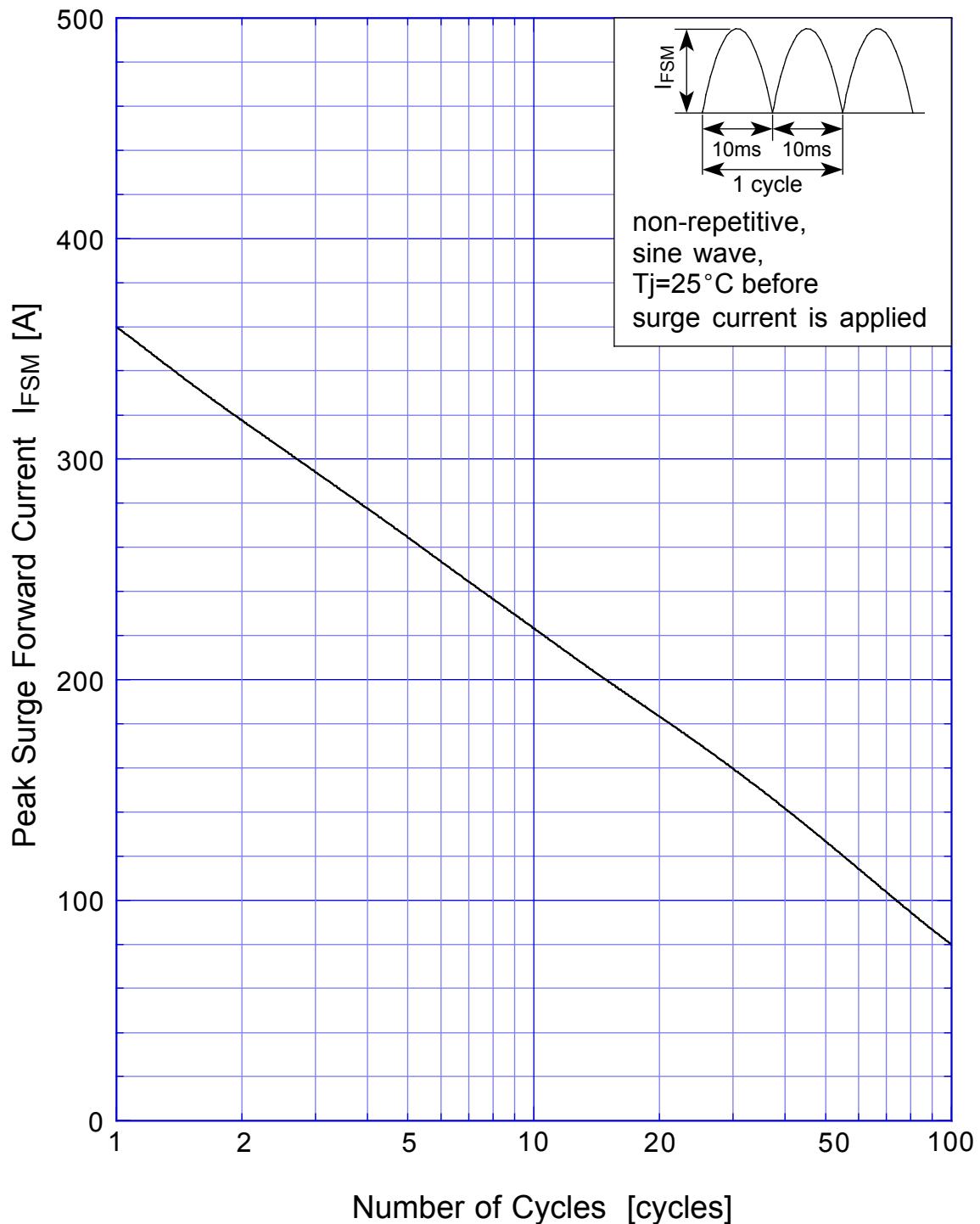
SBD   Repetitive Surge Reverse Power Derating Curve

Junction Temperature Tj [°C]

$$P_{RRSM} = I_{RP} \times V_{RP}$$

SBD — Repetitive Surge Reverse Power Capability

Y-axis: $P_{RRSM}(t_p) / P_{RRSM}(t_p = 10\mu s)$ Ratio

X-axis: Pulse Width t_p [μs]

$$P_{RRSM} = I_{RP} \times V_{RP}$$