MPCF30N65A

Features

- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Temperature-independent Switching Behavior
- Positive Temperature Coefficient on V_F
- High-speed switching possible
- High surge current capability

TO-220F-2

Applications

- Switch Mode Power Supply (SMPS)
- Motor Drives
- Power Factor Correction(PFC)

Ordering Information

Type N0.	Marking	Package
MPCF30N65A	MPCF30N65A	TO-220F-2

Absolute Maximum Ratings (T_C = 25ºC, unless otherwise noted)

Parameter	Symbol	Test Conditions	Value	Unit	Note
Repetitive Peak Reverse Voltage	V_{RRM}		650	V	
Surge Peak Reverse Voltage	V_{RSM}		650	V	
DC Blocking Voltage	V_{DC}		650	V	
Continuous Forward Current	I_F	$T_C \leq 25ºC$	27	A	
		$T_C \leq 85ºC$	17		
Non-Repetitive Forward Surge Current	I_{FSM}	T_C = 25ºC, t_p=8.3ms, Half Sine Wave	200	A	
Power Dissipation	P_{tot}	T_C = 25ºC	37.5	W	
Operating Junction and Storage Temperature	T_J, T_{stg}		-55~+175	ºC	

Electrical Characteristics (T_J = 25ºC , unless otherwise noted)

Parameter	Symbol	Test Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
Forward Voltage	V_F	I_F = 30A, T_J = 25ºC	--	1.5	1.8	V	Fig.1
		I_F = 30A, T_J = 175ºC	--	1.78	2.3		
Reverse Current	I_R	V_R = 650V, T_J = 25ºC	--	2	20	uA	Fig.2
		V_R = 650V, T_J = 175ºC	--	15	200	uA	
Total Capacitance	C	V_R = 0V, f=1 MHZ	--	1805	--	pF	Fig.3
		V_R = 200V, f=1 MHZ	--	176	--		
		V_R = 400V, f=1 MHZ	--	145	--		
Total Capacitive charge	Q_c	V_{DD} = 400V, T_J = 25ºC, $Q_c=\int_0^{V_R} C(V)dV$		66		nC	Fig.4
Capacitance Stored Energy	E_c	V_R = 400V		11		uJ	Fig.5

Thermal Characteristics

Parameter	Symbol	Typ.	Unit	Note
Thermal Resistance from Junction to Case	R_{thJC}	4	ºC/W	Fig.8
Thermal Resistance from Junction to Ambient	R_{thJA}	80	ºC/W	

Typical Performance (T_J = 25℃, unless otherwise noted)

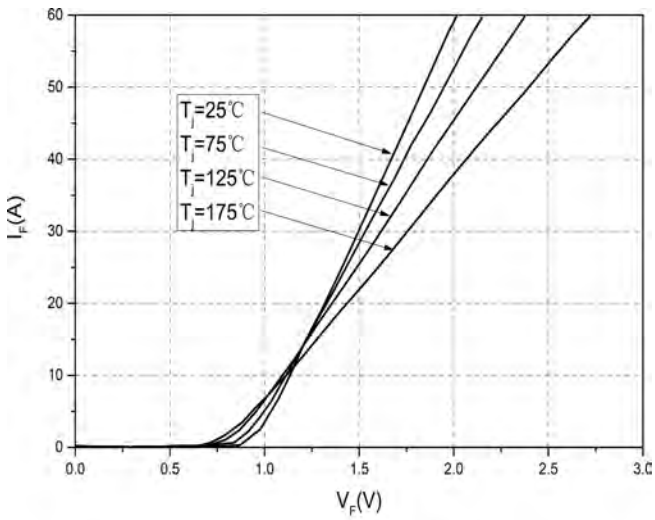


Figure 1. Forward Characteristics

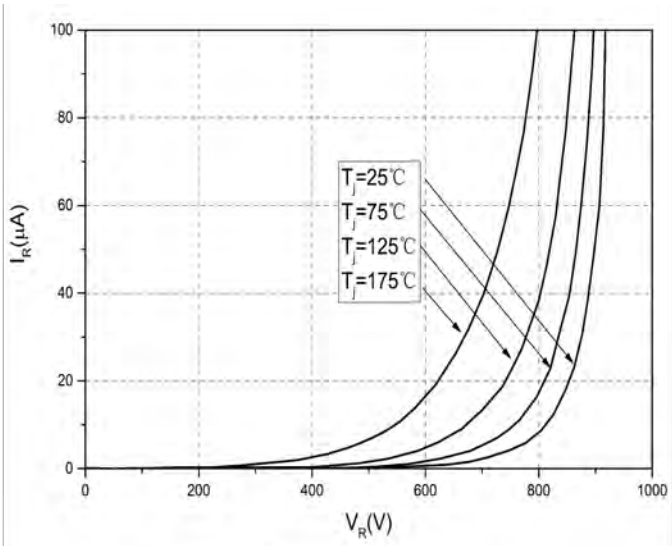


Figure 2. Reverse Characteristics

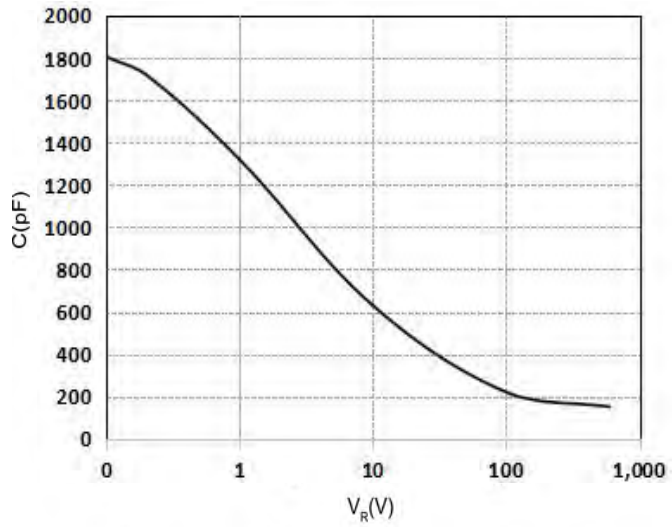


Figure 3. Capacitance vs. Reverse Voltage

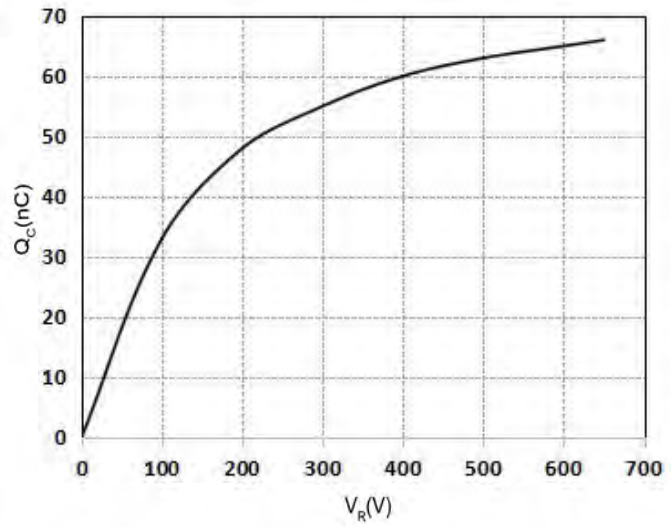


Figure 4. Total Capacitance Charge vs. Reverse Voltage

Typical Performance (T_J = 25℃, unless otherwise noted)

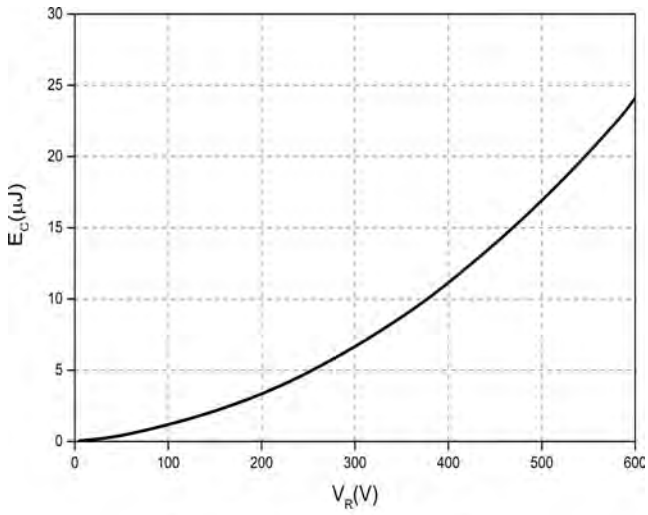


Figure 5. Capacitance Stored Energy

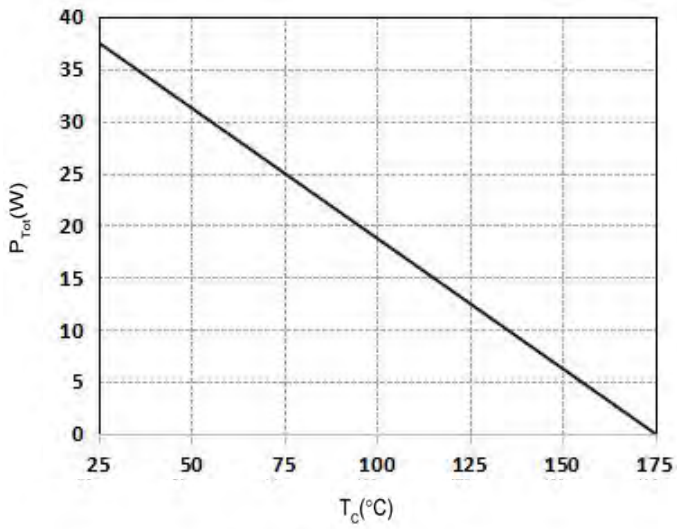


Figure 6. Power derating

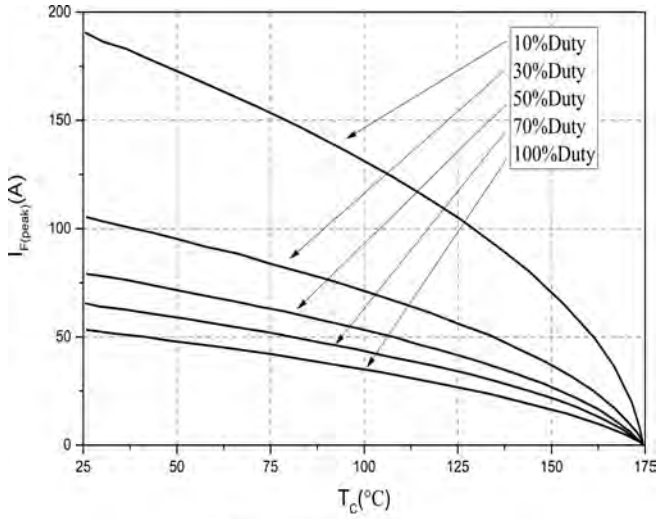


Figure 7. Current Derating

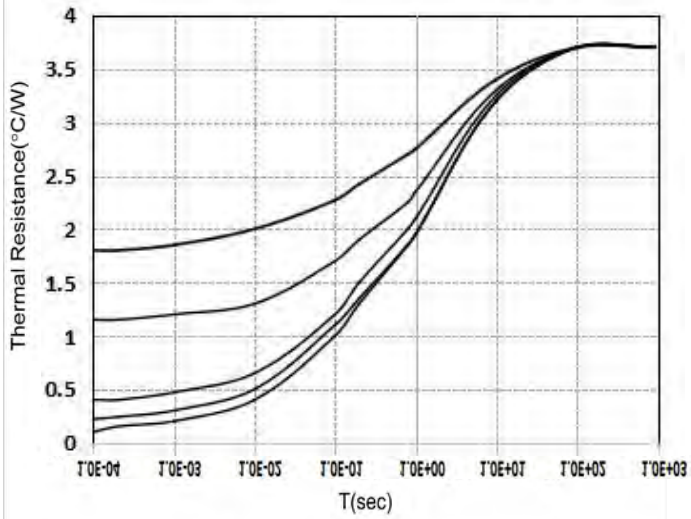
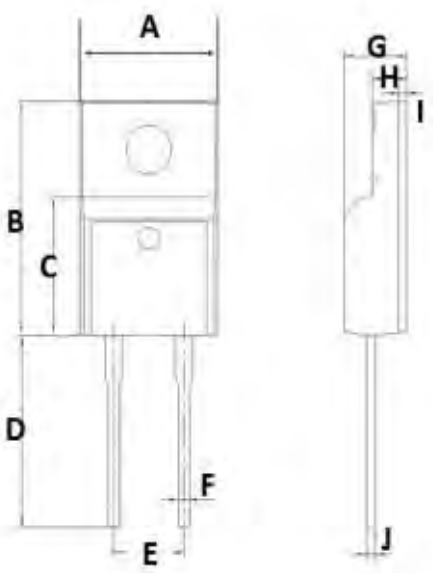


Figure 8. Transient Thermal Impendance

Outline Dimensions

Unit: um



Symbol	Min. (mm)	Typ. (mm)	Max. (mm)
A	9.90	10.10	10.30
B	15.80	16.00	16.20
C	9.10	9.30	9.50
D	12.90	13.20	13.50
E	4.70	5.00	5.30
F	0.60	0.80	1.00
G	4.55	4.75	4.95
H	2.40	2.60	2.80
I	0.40	0.60	0.80
J	0.42	0.50	0.58