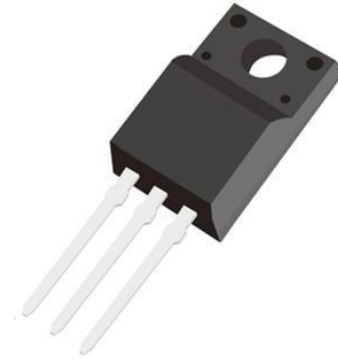


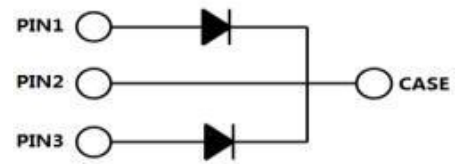
**Features**

- | 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



**Applications**

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



<b>Ordering Information</b>		
Type N0.	Marking	Package
MPCF16N65A	MPCF16N65A	TO-220F

<b>Absolute Maximum Ratings</b> $T_C = 25^\circ\text{C}$ , unless otherwise noted					
Parameter	Symbol	Test Conditions	Value	Unit	Note
Repetitive Peak Reverse Voltage	$V_{RRM}$	$T_C = 25^\circ\text{C}$	650	V	
Surge Peak Reverse Voltage	$V_{RSM}$	$T_C = 25^\circ\text{C}$	650	V	
DC Blocking Voltage	$V_{DC}$	$T_C = 25^\circ\text{C}$	650	V	
Continuous Forward Current	$I_F$	$T_C \leq 25^\circ\text{C}$	46	A	
		$T_C \leq 150^\circ\text{C}$	16		
Non-Repetitive Forward Surge Current	$I_{FSM}$	$T_C = 25^\circ\text{C}$ , $t_p=8.3\text{ms}$ , Half Sine Wave	72	A	
Power Dissipation	$P_{tot}$	$T_C = 25^\circ\text{C}$	50	W	
Operating Junction and Storage Temperature	$T_J, T_{stg}$		-55~+175	$^\circ\text{C}$	



# MPCF16N65A

## Electrical Characteristics $T_J = 25^\circ\text{C}$ , unless otherwise noted

Parameter	Symbol	Test Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
Forward Voltage	$V_F$	$I_F = 8\text{A}, T_J = 25^\circ\text{C}$	--	1.4	1.65	V	Fig.1
		$I_F = 8\text{A}, T_J = 175^\circ\text{C}$	--	1.7	2.3		
Reverse Current	$I_R$	$V_R = 650\text{V}, T_J = 25^\circ\text{C}$	--	1	20	$\mu\text{A}$	Fig.2
		$V_R = 650\text{V}, T_J = 175^\circ\text{C}$	--	5	100	$\mu\text{A}$	
Total Capacitance	C	$V_R = 0\text{V}, f = 1\text{MHz}$	--	520	--	pF	Fig.5
		$V_R = 200\text{V}, f = 1\text{MHz}$	--	50	--		
		$V_R = 400\text{V}, f = 1\text{MHz}$	--	41	--		
Total Capacitive charge	$Q_c$	$V_{DD} = 650\text{V}, I_F = 8\text{A}$ $di/dt = 200\text{A}/\mu\text{s}, T_J = 25^\circ\text{C}$		22		nC	Fig.4

## Thermal Characteristics

Parameter	Symbol	Typ.	Unit	Note
Thermal Resistance from Junction to Case	$R_{thJC}$	3	$^\circ\text{C}/\text{W}$	



# MPCF16N65A

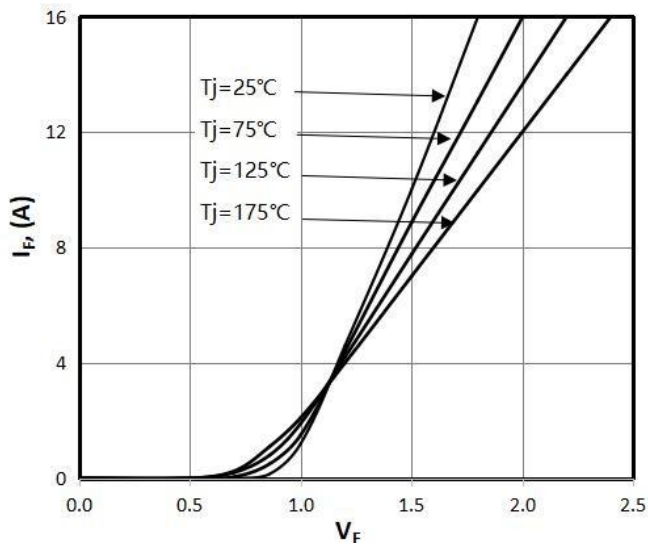


Figure 1. Forward Characteristics

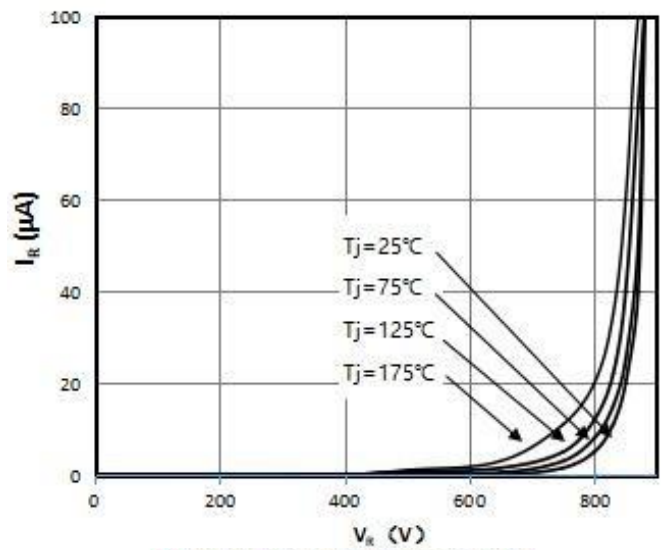


Figure 2. Reverse Characteristics

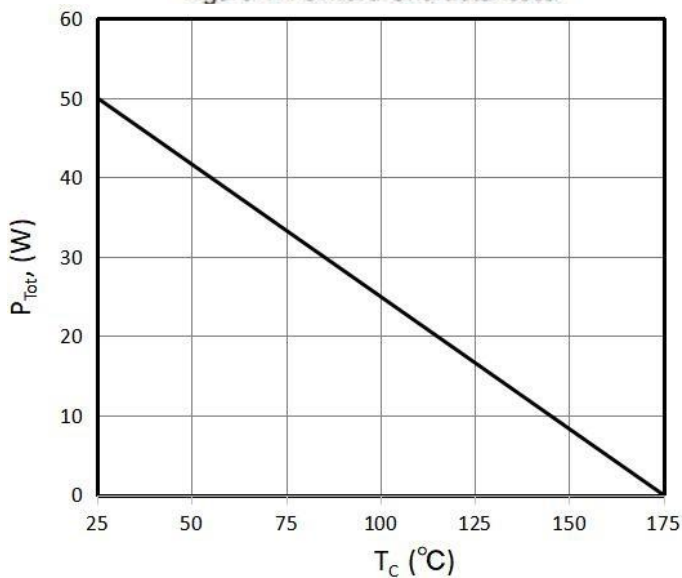


Figure 3. Power Derating

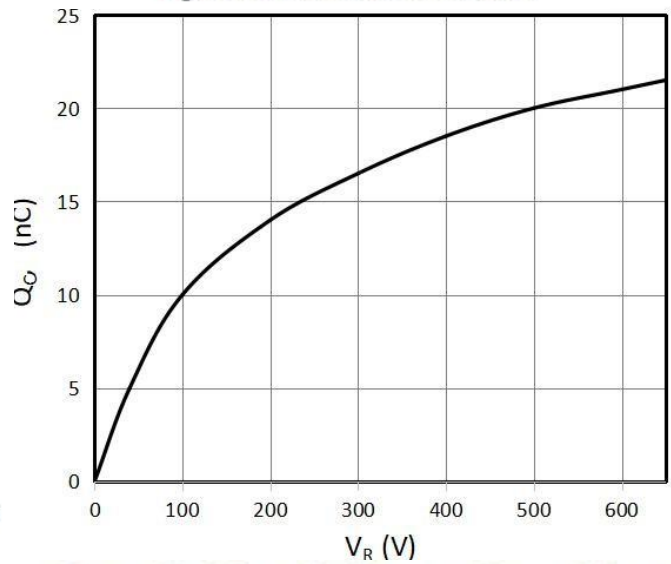


Figure 4. Total Capacitive Charge vs. Reverse Voltage

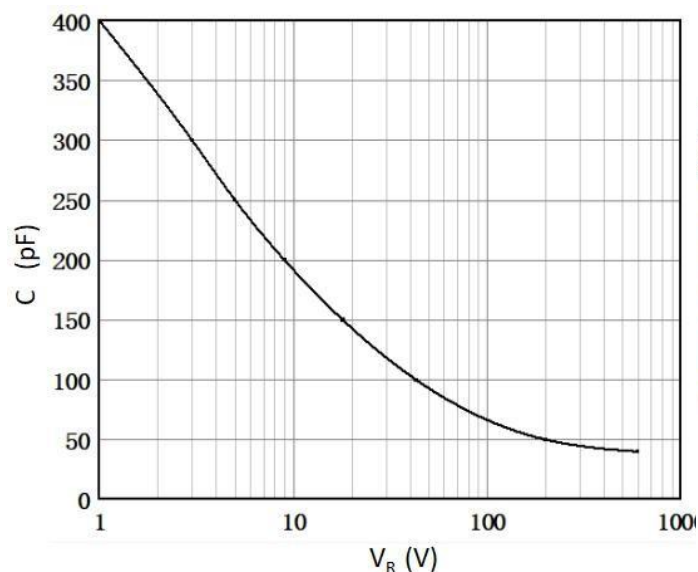


Figure 5. Total Capacitance vs. Reverse Voltage

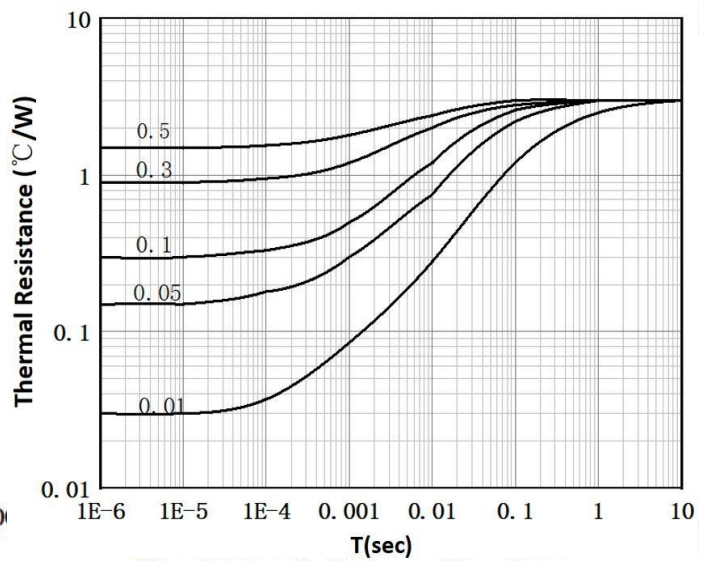
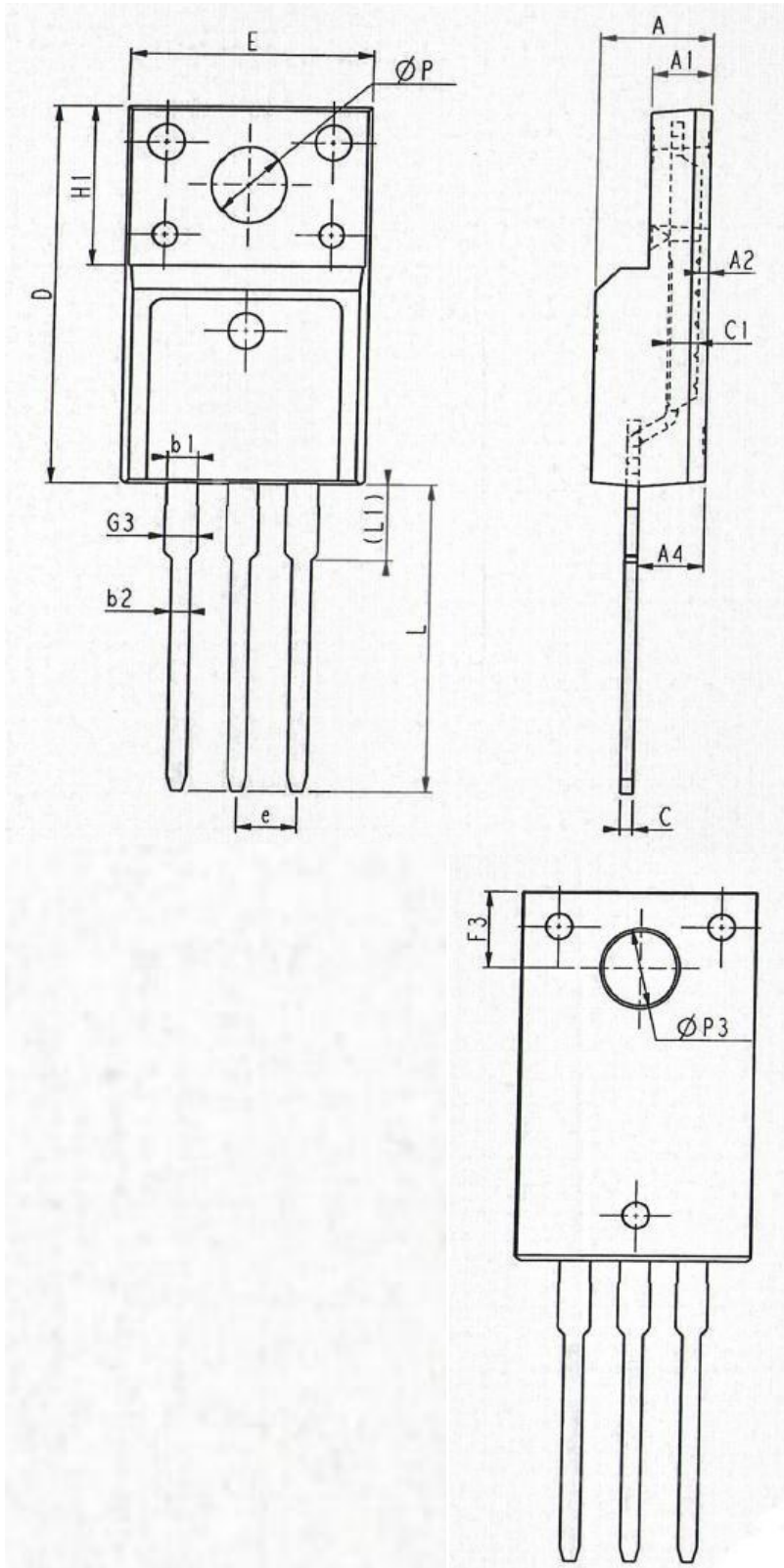


Figure 6. Transient Thermal Impedance

## Outline Dimensions



SYMBOL	MM		
	MIN	NOM	MAX
E	9.96	10.16	10.36
A	4.50	4.70	4.90
A1	2.34	2.54	2.74
A2	0.30	0.45	0.60
A4	2.56	2.76	2.96
c	0.40	0.50	0.65
c1	1.20	1.30	1.35
D	15.57	15.87	16.17
H1	6.70REF		
e	2.54BSC		
L	12.68	12.98	13.28
L1	3.03	3.23	3.43
$\phi P$	3.03	3.18	3.38
$\phi P3$	3.15	3.45	3.65
F3	3.15	3.30	3.45
G3	1.25	1.35	1.55
b1	1.18	1.28	1.43
b2	0.70	0.80	0.95