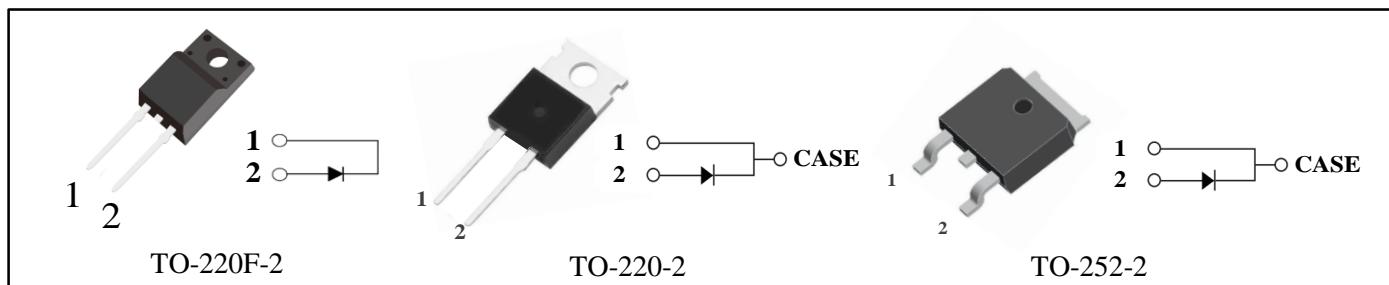


## Features

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

## Applications

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



## Ordering Information

Type No.	Marking	Package
MPCF8N65A	MPCF8N65A	TO-220F-2
MPCC8N65A	MPCC8N65A	TO-220-2
MPCD8N65A	MPCD8N65A	TO-252-2

## Absolute Maximum Ratings $T_C = 25^\circ\text{C}$ , unless otherwise noted

Parameter	Symbol	Test Conditions	Value		Unit	Note
			220F	220-252		
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	$I_F$	$T_C = 25^\circ\text{C}$	21		A	Fig. 7
		$T_C = 150^\circ\text{C}$	8			
Non-Repetitive Forward Surge Current	$I_{FSM}$	$T_C = 25^\circ\text{C}, t_p=8.3\text{ms, Half Sine Wave}$	70		A	
Non-Repetitive Peak Forward Current	$I_{F,Max}$	$T_C = 25^\circ\text{C}, t_p=10\mu\text{s, Pulse}$	364		A	
Power Dissipation	$P_{tot}$	$T_C = 25^\circ\text{C}$	33	120	W	Fig. 6
Operating Junction and Storage Temperature	$T_J, T_{stg}$		-55~+175		°C	



懋昇电源

# MPCX8N65A Series

## Silicon Carbide Schottky Diode

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

Parameter	Symbol	Test Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
Forward Voltage	$V_F$	$I_F = 8\text{A}, T_J = 25^\circ\text{C}$	--	1.42	1.65	V	Fig.1
		$I_F = 8\text{A}, T_J = 175^\circ\text{C}$	--	1.75	2.3		
Reverse Current	$I_R$	$V_R = 650\text{V}, T_J = 25^\circ\text{C}$	--	1	20	uA	Fig.2
		$V_R = 650\text{V}, T_J = 175^\circ\text{C}$	--	5	100	uA	
Total Capacitance	C	$V_R = 0\text{V}, f=1 \text{ MHZ}$	--	520	--	pF	Fig.3
		$V_R = 200\text{V}, f=1 \text{ MHZ}$	--	50	--		
		$V_R = 400\text{V}, f=1 \text{ MHZ}$	--	41	--		
Total Capacitive charge	$Q_c$	$V_{DD} = 400\text{V}, T_J = 25^\circ\text{C}, Q_c = \int_0^{V_R} C(V)dV$		26		nC	Fig.4
Capacitance Stored Energy	$E_c$	$V_R = 400\text{V}$		2.8		uJ	Fig.5

### Thermal Characteristics

Parameter	Symbol	Typ.			Unit	Note
		220F	220	252		
Thermal Resistance from Junction to Case	$R_{thJC}$	8.8	1.28		°C/W	Fig.8

**Typical Performance**  $T_J = 25^\circ\text{C}$ , unless otherwise noted

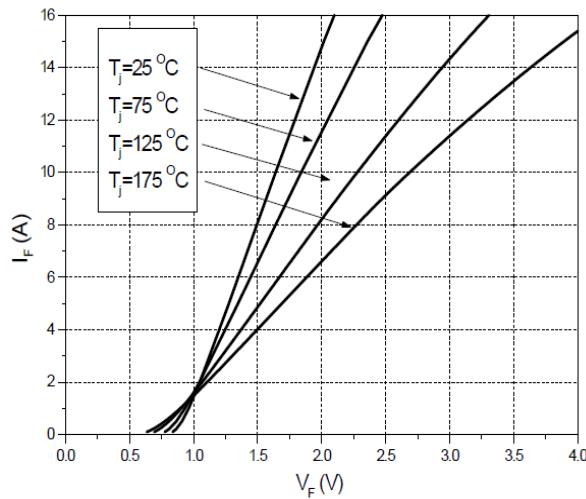


Figure 1. Forward Characteristics

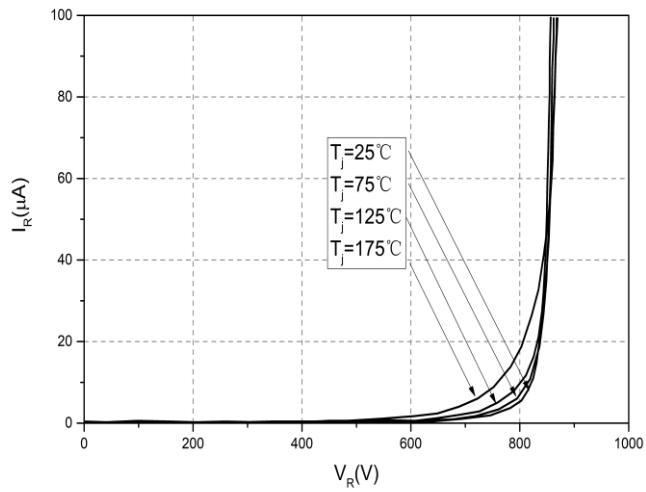


Figure 2. Reverse Characteristics

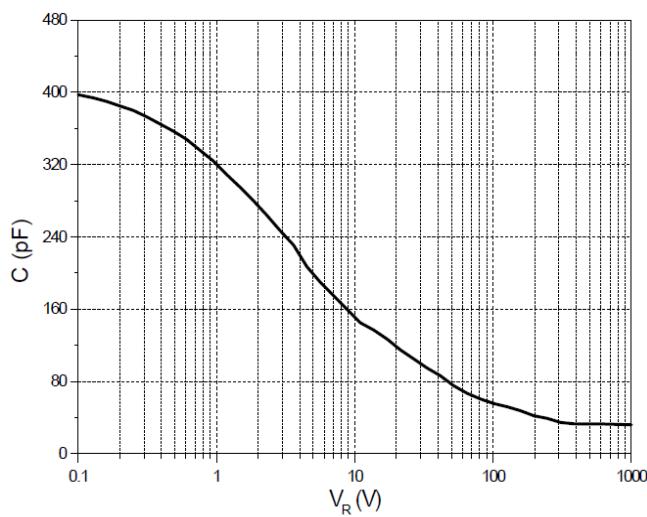


Figure 3. Capacitance vs. Reverse Voltage

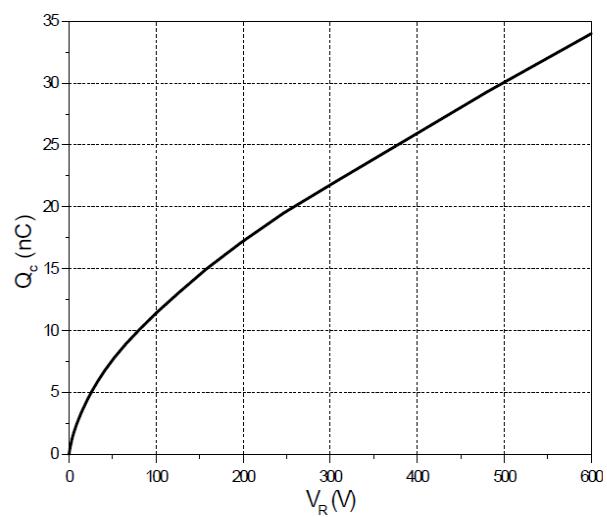


Figure 4. Total Capacitance Charge vs. Reverse Voltage

**Typical Performance**  $T_J = 25^\circ\text{C}$ , unless otherwise noted

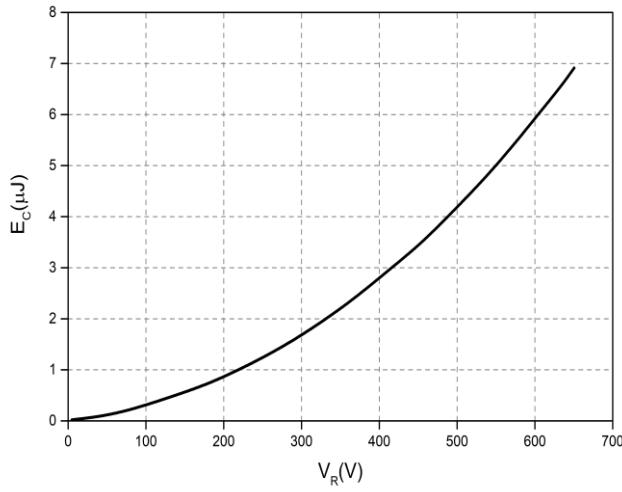


Figure 5. Capacitance Stored Energy

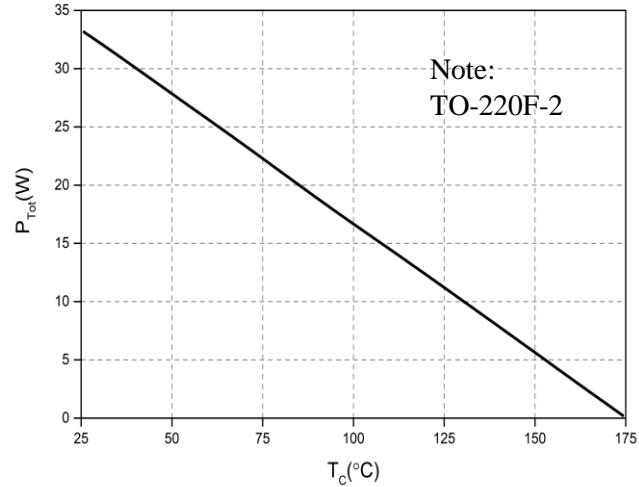


Figure 6. Power derating

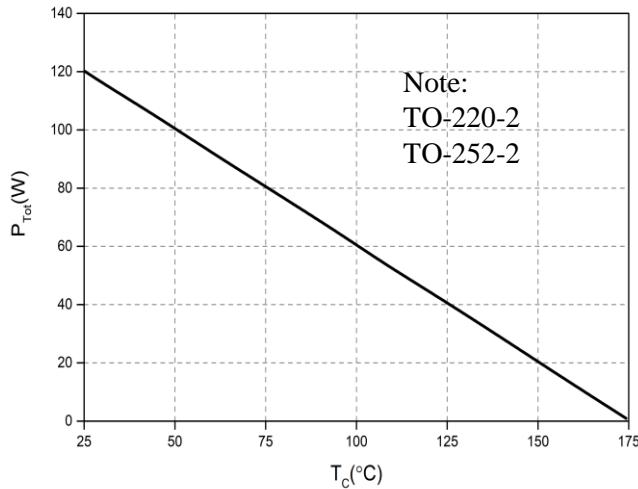


Figure 6. Power derating

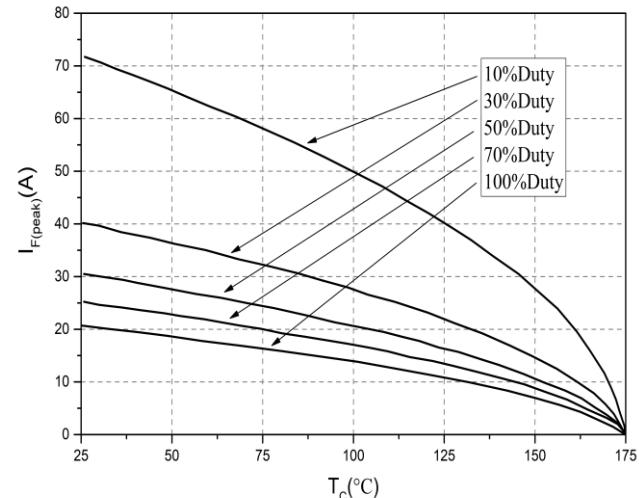


Figure 7. Current Derating

**Typical Performance**  $T_J = 25^\circ\text{C}$ , unless otherwise noted

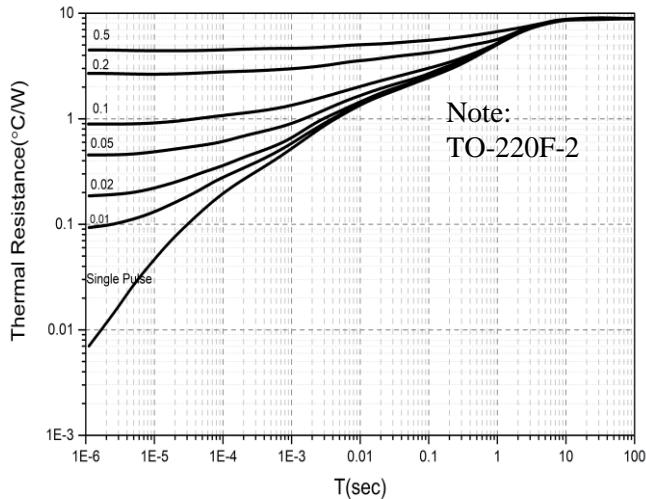


Figure 8. Transient Thermal Impedance

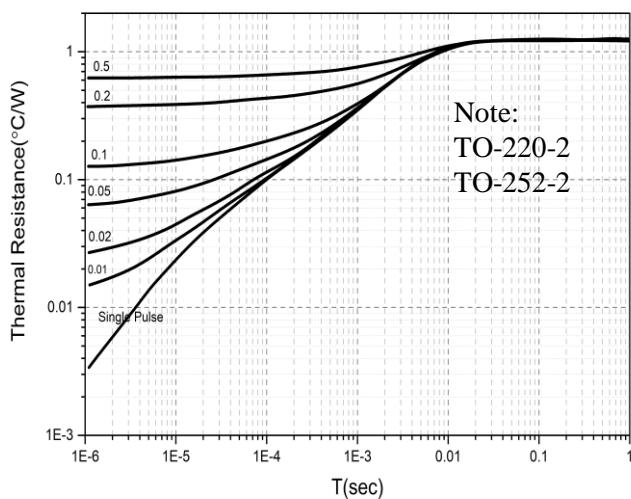


Figure 8. Transient Thermal Impedance

## Outline Dimensions

Unit: um

TO-220F-2

The diagram illustrates the TO-220F-2 package outline with two views: a top view showing lead spacing and a side view showing lead height and body width. Dimension labels include E, F, G, H, L, M, N, P, S, D, T, and a note for Alt+A.

POS	Inches		Millimeters	
	Min	Max	Min	Max
A	0.177	0.194	4.5	4.93
B	0.092	0.108	2.34	2.74
C	0.256	0.272	6.5	6.9
D	0.098	0.117	2.5	2.96
E	0.39	0.408	9.9	10.36
F	0.117	0.134	2.98	3.4
G	0.122	0.138	3.1	3.5
H	0.617	0.633	15.67	16.07
L	0.039	0.055	1	1.4
M	0.016	0.036	0.4	0.91
N	0.200 TYP		5.08 TYP	
P	0.114	0.154	1.9	3.9
S	0.476	0.519	12.1	13.18
T	0.016	0.031	0.4	0.8

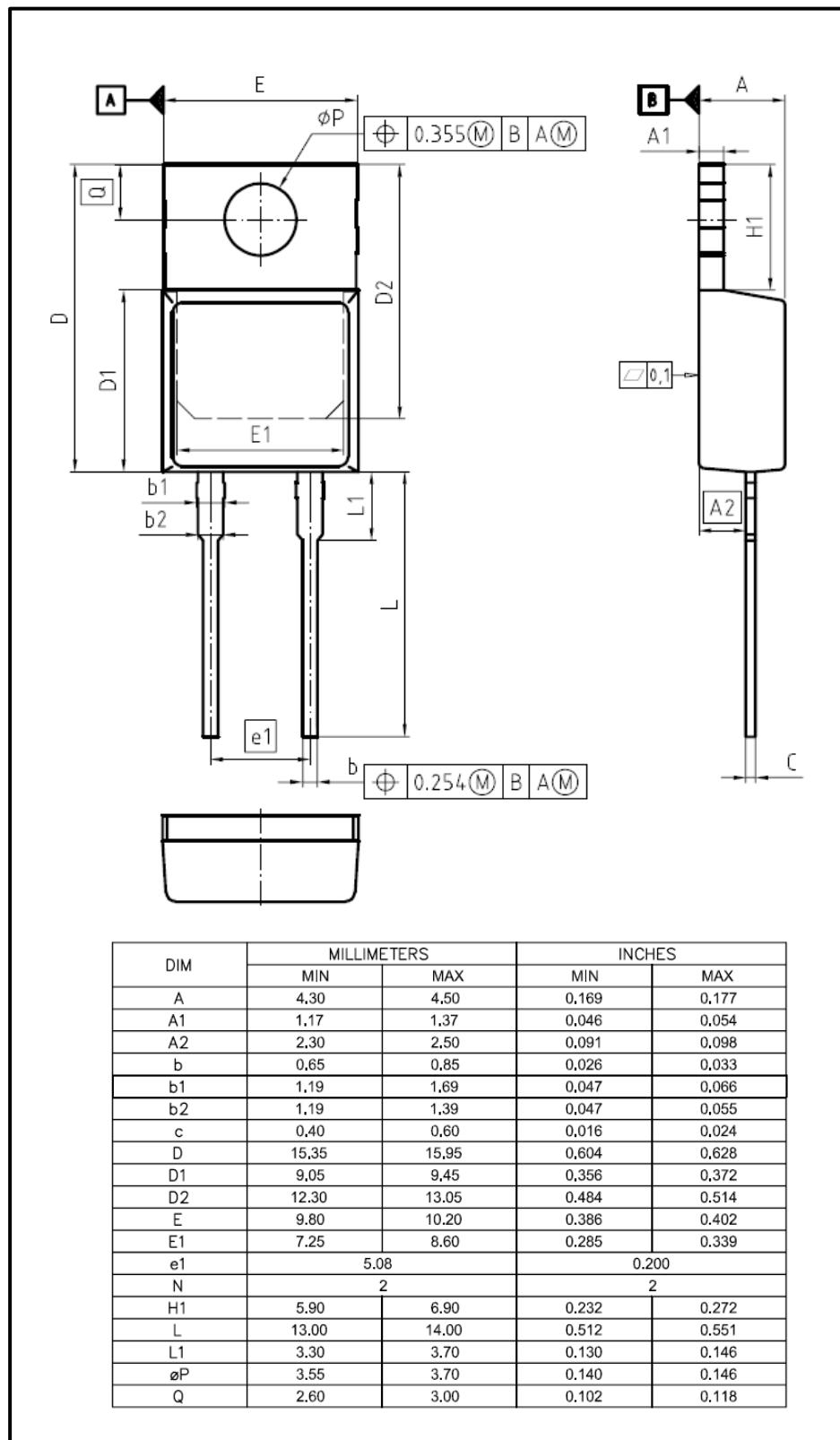
NOTE:  
 1. Dimension L, M, T apply for Solder Dip Finish

[截图\(Alt + A\)](#)

## Outline Dimensions

Unit: um

TO-220-2



## Outline Dimensions

Unit: um

TO-252-2

SYMBOL	MILLIMETERS	
	MIN	MAX
A	2.159	2.413
A1	0	0.13
b	0.64	0.89
b2	0.653	1.143
b3	5.004	5.6
c	0.457	0.61
c2	0.457	0.864
D	5.867	6.248
D1	5.21	-
E	6.35	7.341
E1	4.32	-
e	4.58 BSC	
H	9.65	10.414
L	1.106	1.78
L2	0.51 BSC	
L3	0.889	1.27
L4	0.64	1.01
θ	0°	8°