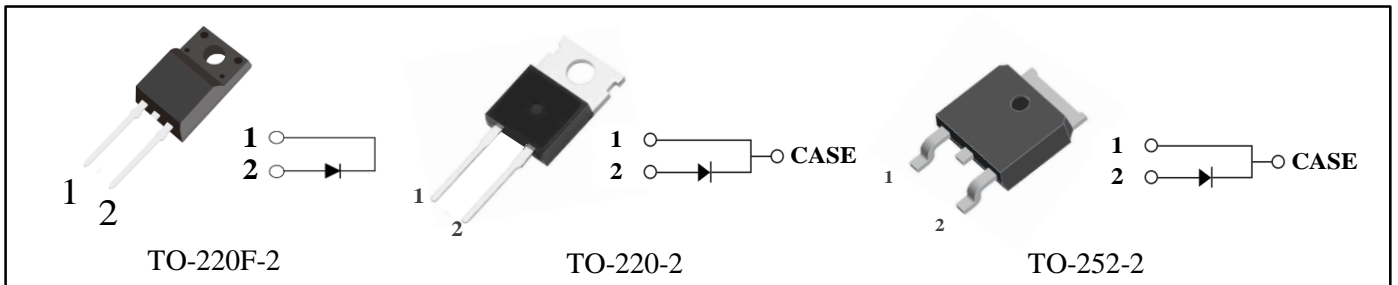


Features

- 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
MPCF4N65A	MPCF4N65A	TO-220F-2
MPCC4N65A	MPCC4N65A	TO-220-2
MPCD4N65A	MPCD4N65A	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	$T_C = 25^\circ\text{C}$	6		A	Fig.7
		$T_C = 150^\circ\text{C}$	4			
Non-Repetitive Forward Surge Current	I_{FSM}	$T_C = 25^\circ\text{C}$, $t_p=8.3\text{ms}$, Half Sine Wave	40		A	
Non-Repetitive Peak Forward Current	$I_{F,Max}$	$T_C = 25^\circ\text{C}$, $t_p=10\mu\text{s}$, Pulse	220		A	
Power Dissipation	P_{tot}	$T_C = 25^\circ\text{C}$	26	55	W	Fig.6
Operating Junction and Storage Temperature	T_J, T_{stg}		-55~+175		$^\circ\text{C}$	



芯善物科技

MPCX4N65A 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	$I_F = 4\text{A}, T_J = 25^\circ\text{C}$	--	1.4	1.65	V	Fig.1
		$I_F = 4\text{A}, T_J = 175^\circ\text{C}$	--	1.7	2.3		
Reverse Current	I_R	$V_R = 650\text{V}, T_J = 25^\circ\text{C}$	--	1	10	uA	Fig.2
		$V_R = 650\text{V}, T_J = 175^\circ\text{C}$	--	5	100	uA	
Total Capacitance	C	$V_R = 0\text{V}, f=1\text{ MHz}$	--	230	--	pF	Fig.3
		$V_R = 200\text{V}, f=1\text{ MHz}$	--	24	--		
		$V_R = 400\text{V}, f=1\text{ MHz}$	--	20	--		
Total Capacitive charge	Q_c	$V_{DD} = 400\text{V}, T_J = 25^\circ\text{C},$ $Q_c = \int_0^{V_R} C(V)dV$		8		nC	Fig.4
Capacitance Stored Energy	E_c	$V_R = 400\text{V}$		1.4		uJ	Fig.5

Thermal Characteristics					
Parameter	Symbol	Typ.		Unit	Note
		220F	220-252		
Thermal Resistance from Junction to Case	R_{thJC}	11	2.9	$^\circ\text{C/W}$	Fig.8

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

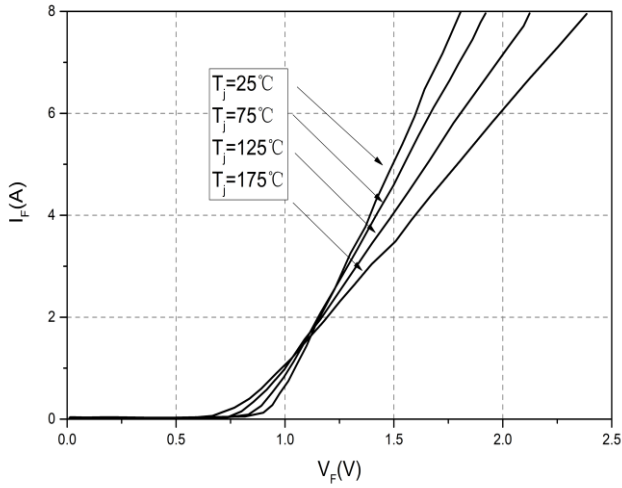


Figure 1. Forward Characteristics

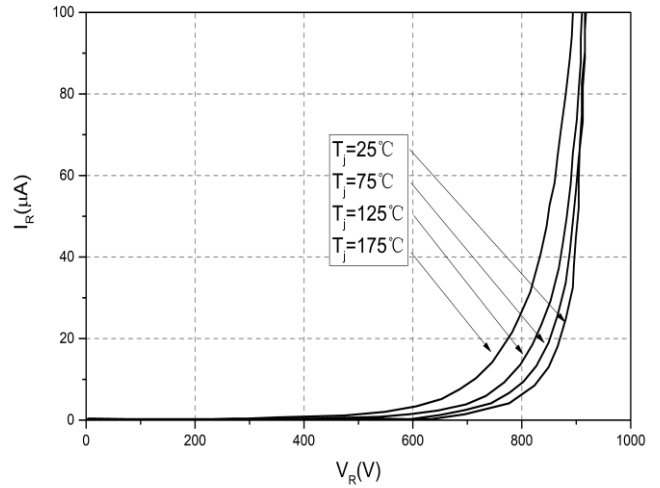


Figure 2. Reverse Characteristics

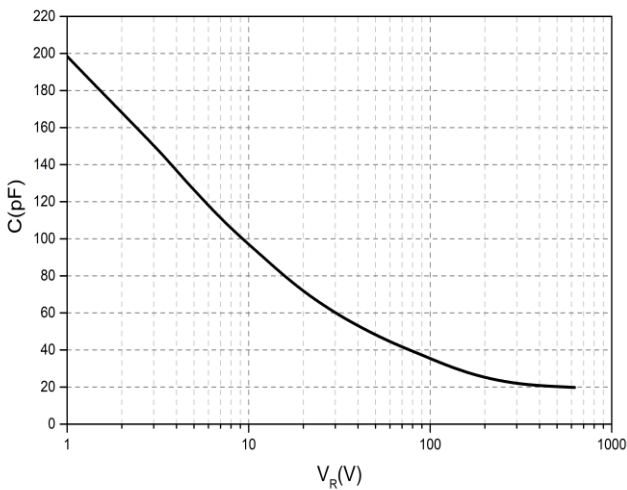


Figure 3. Capacitance vs. Reverse Voltage

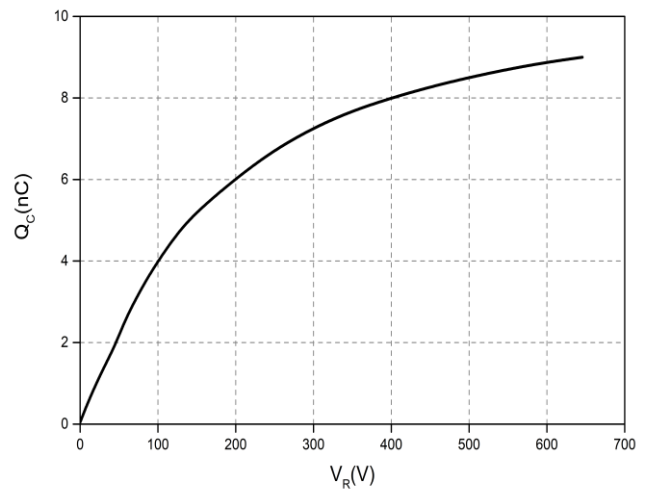


Figure 4. Total Capacitance Charge vs. Reverse Voltage

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

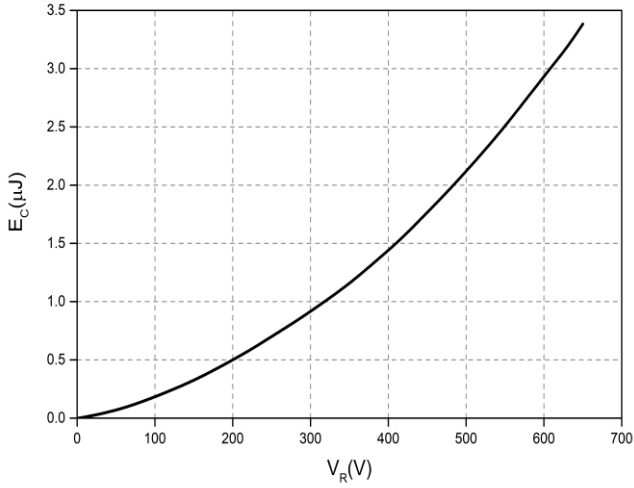


Figure 5. Capacitance Stored Energy

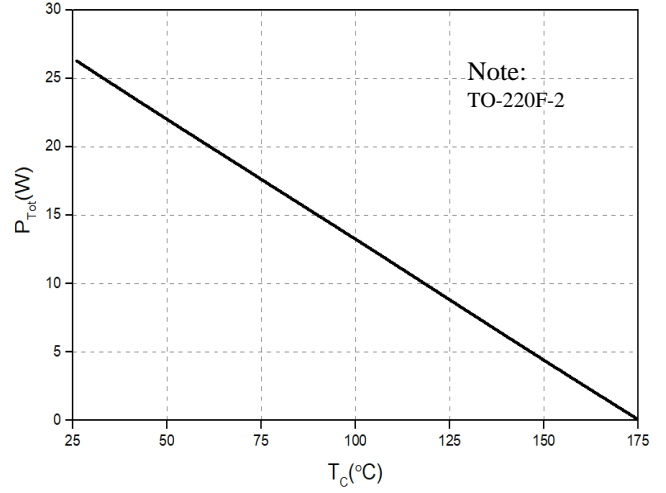


Figure 6. Power derating

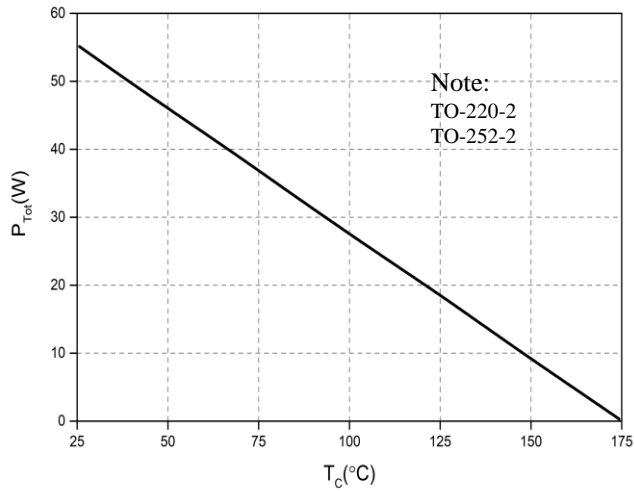


Figure 6. Power derating

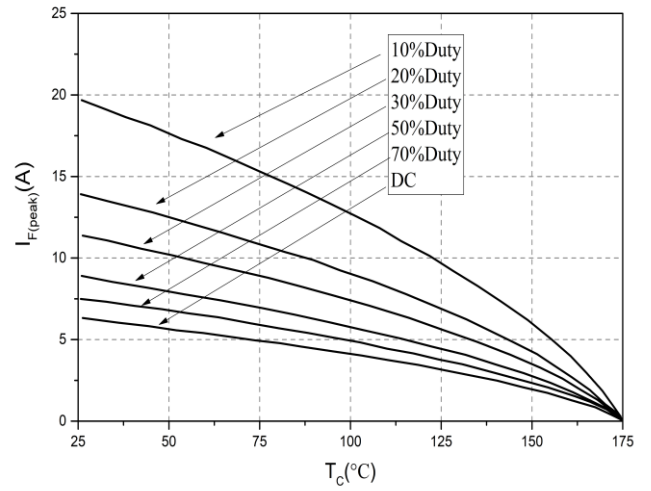


Figure 7. Current Derating

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

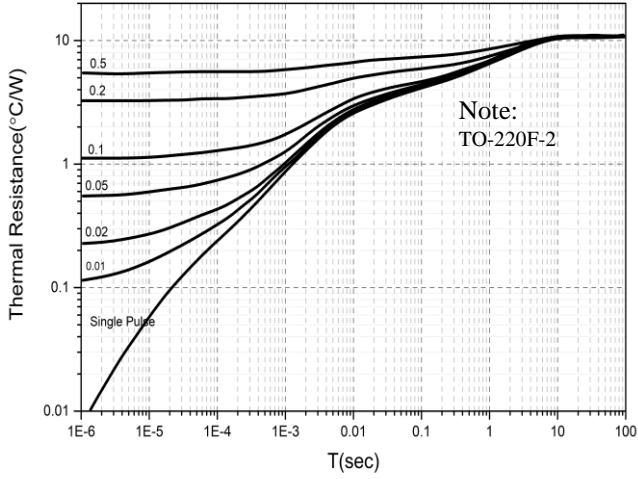


Figure 8. Transient Thermal Impedance

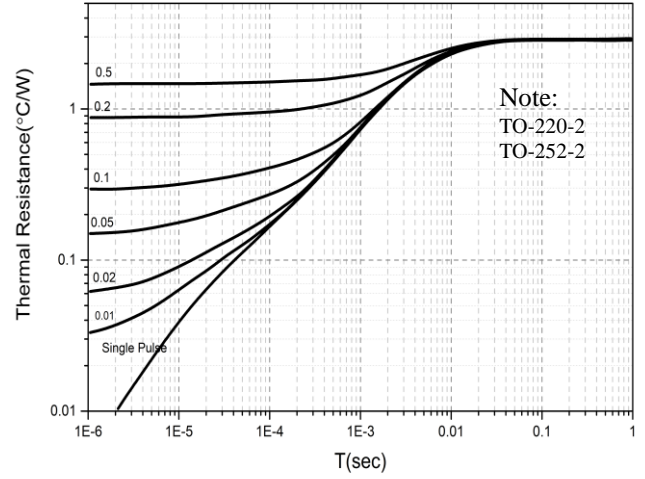
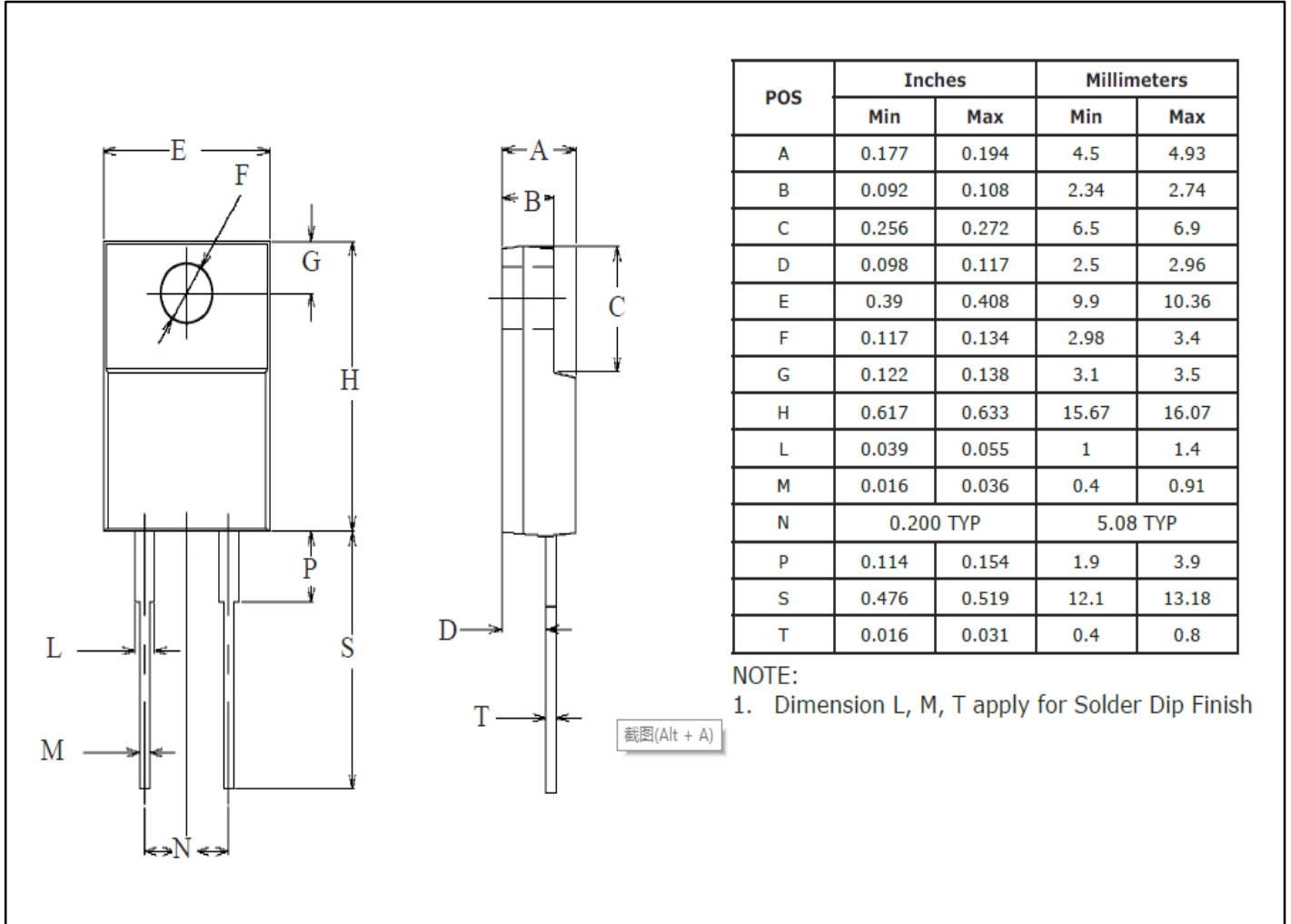


Figure 8. Transient Thermal Impedance

Outline Dimensions

Unit: μm

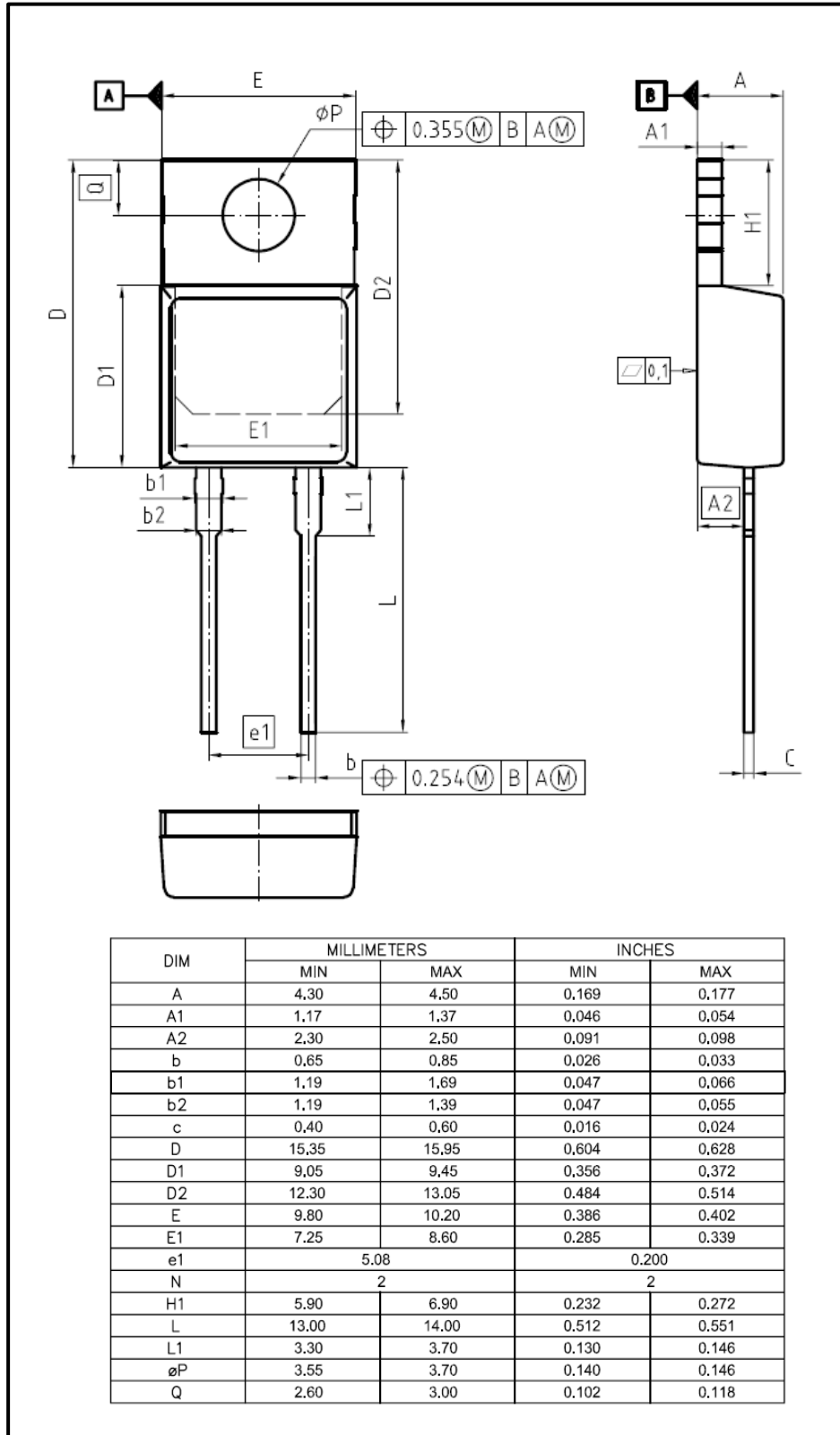
TO-220F-2



Outline Dimensions

Unit: μm

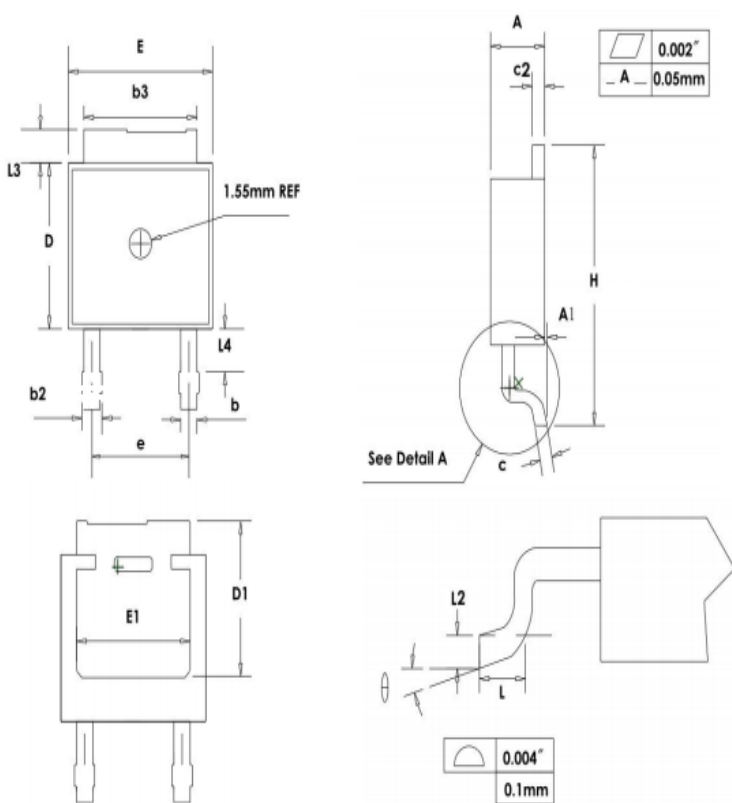
TO-220-2



Outline Dimensions

Unit: μm

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°