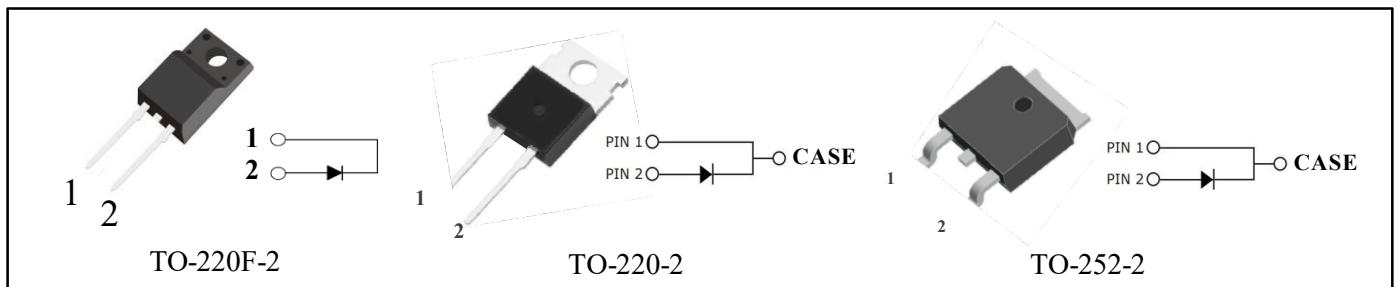


Features

- 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 N0.	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		$^\circ\text{C}$	



MPCX8N65A Series

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		$^\circ\text{C}/\text{W}$	Fig.8

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

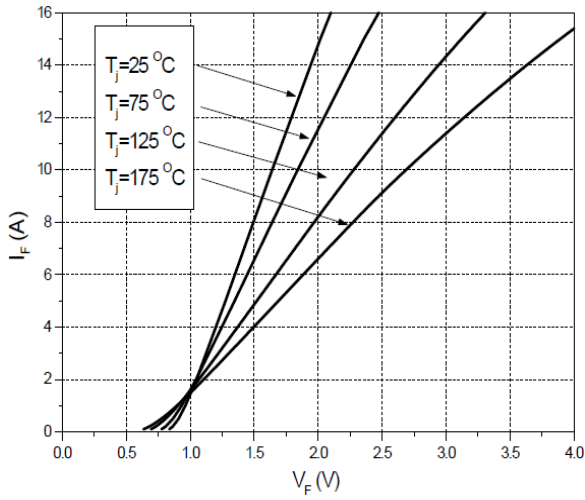


Figure 1. Forward Characteristics

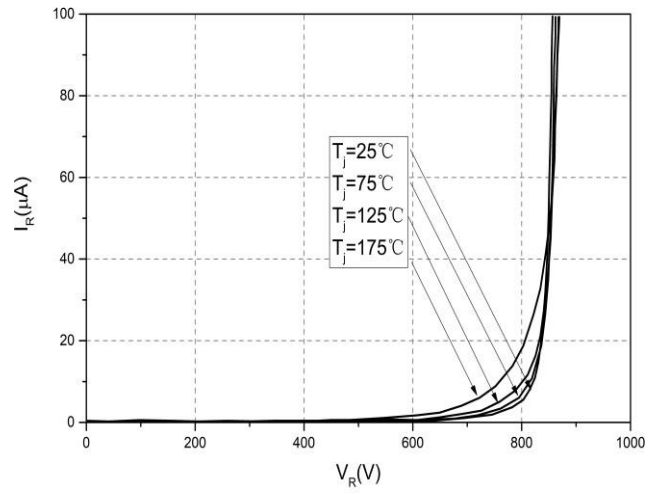


Figure 2. Reverse Characteristics

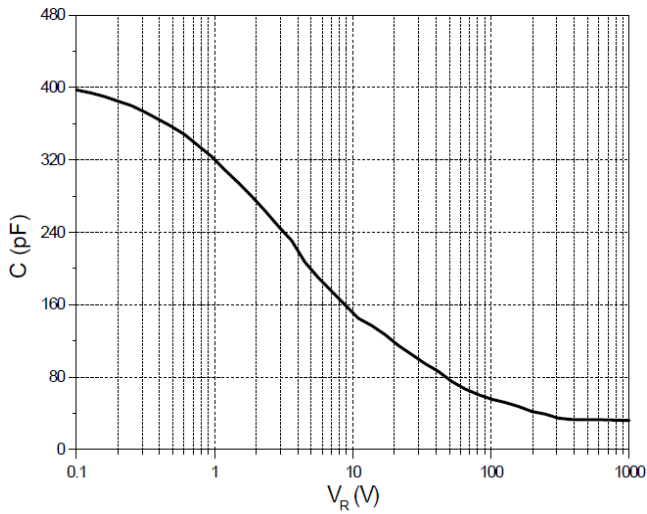


Figure 3. Capacitance vs. Reverse Voltage

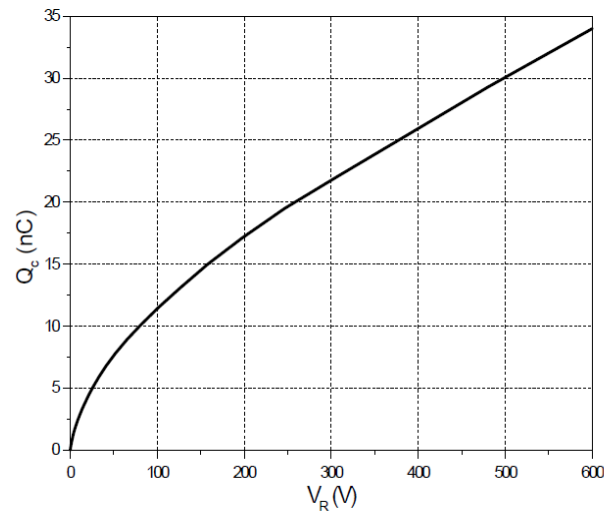


Figure 4. Total Capacitance Charge vs. Reverse Voltage

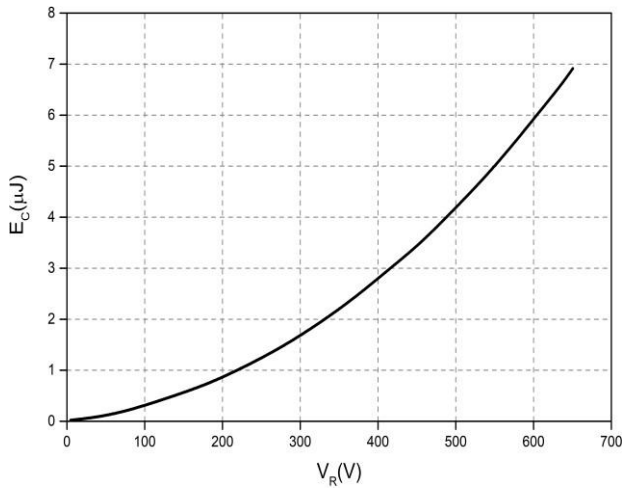


Figure 5. Capacitance Stored Energy

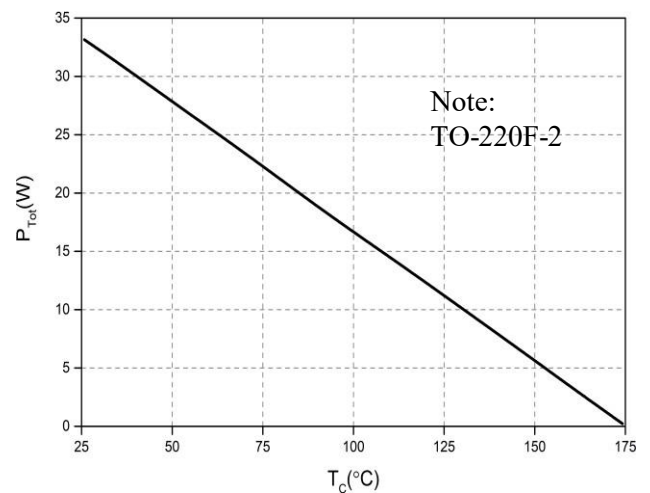


Figure 6. Power derating



MPCX8N65A Series

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

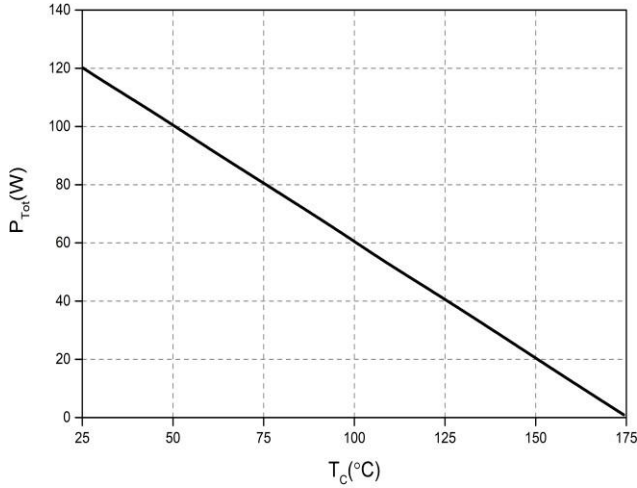


Figure 6. Power derating

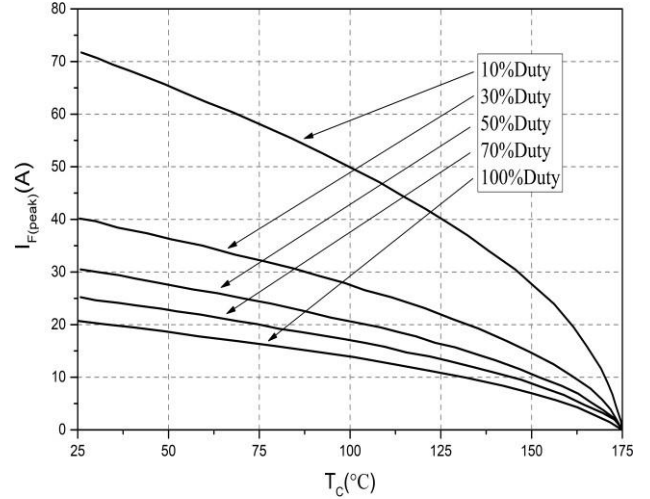


Figure 7. Current Derating

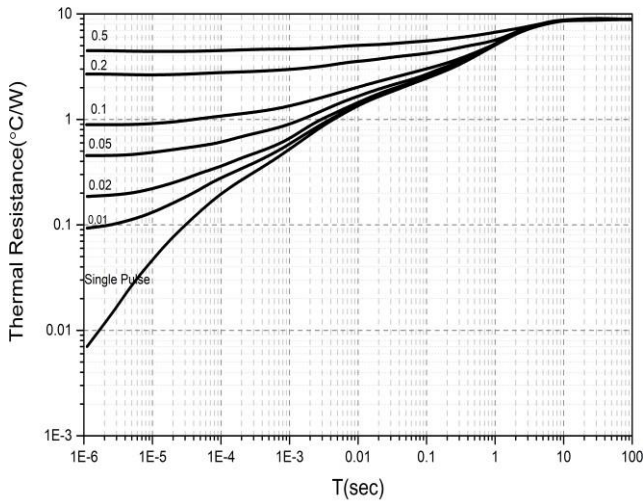


Figure 8. Transient Thermal Impedance

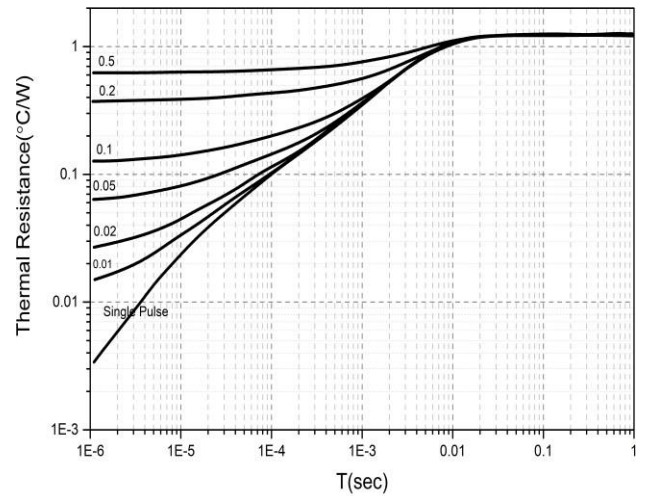
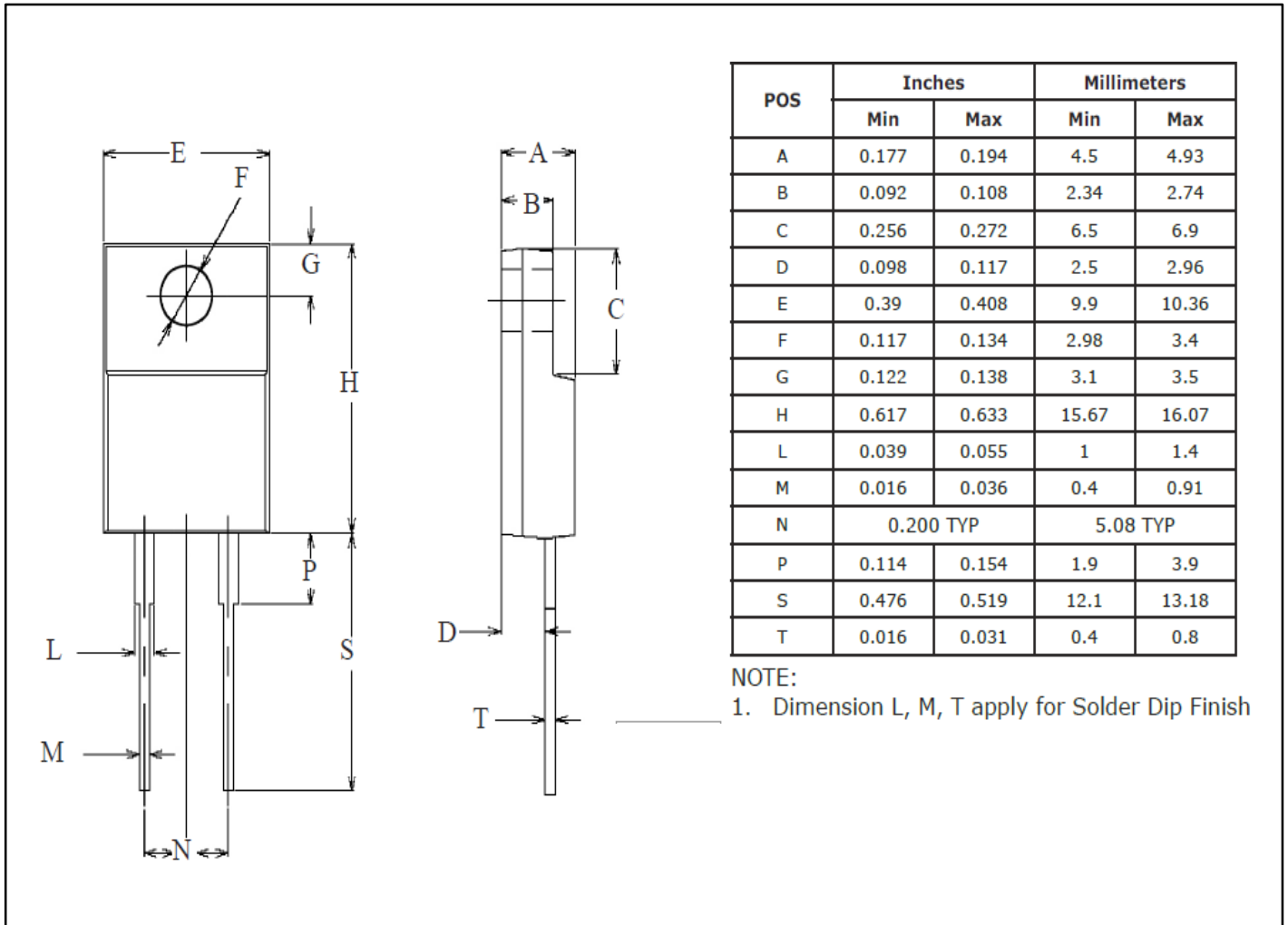


Figure 8. Transient Thermal Impedance

Outline Dimensions

Unit: μm

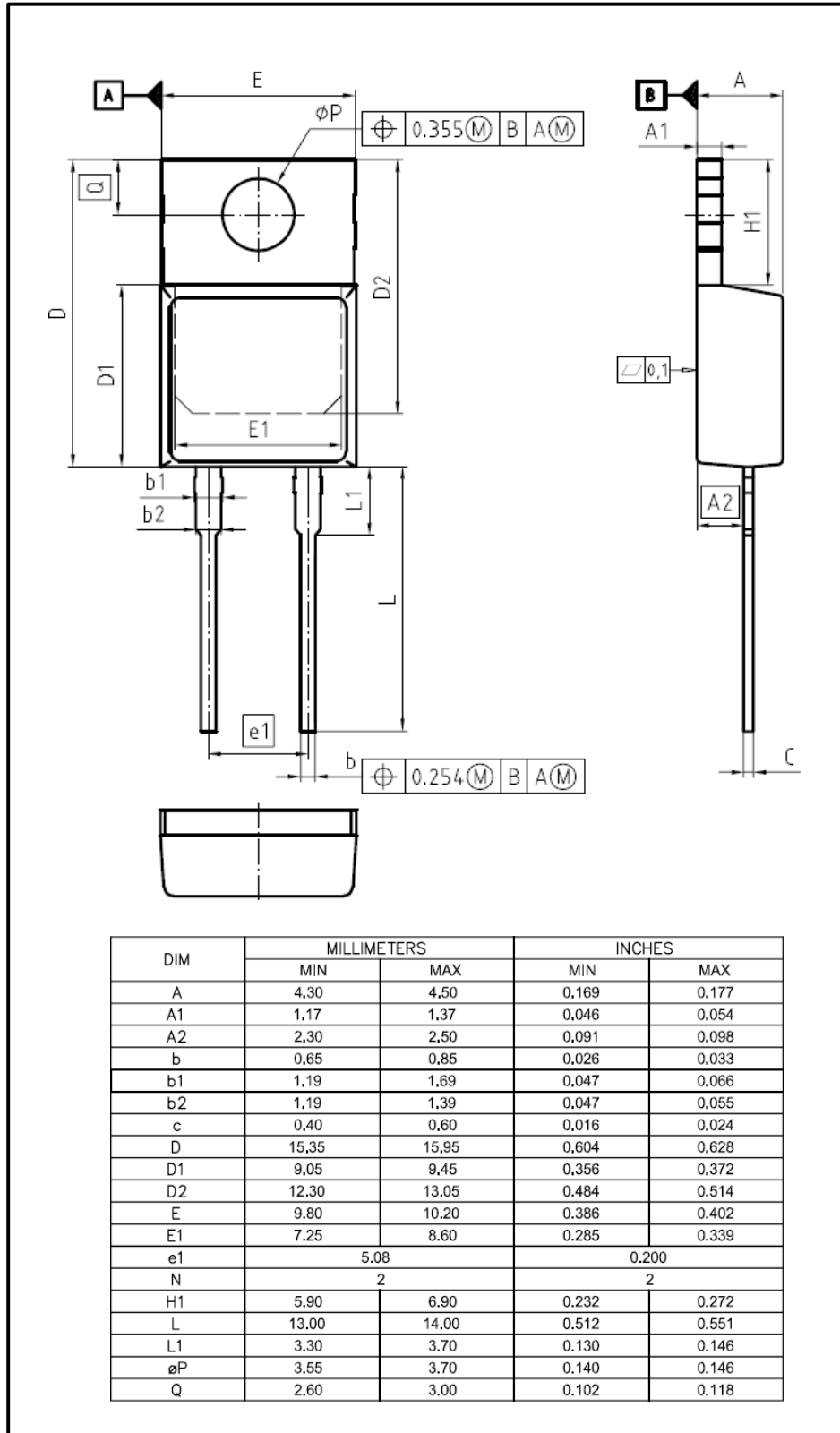
TO-220F-2



Outline Dimensions

Unit: μm

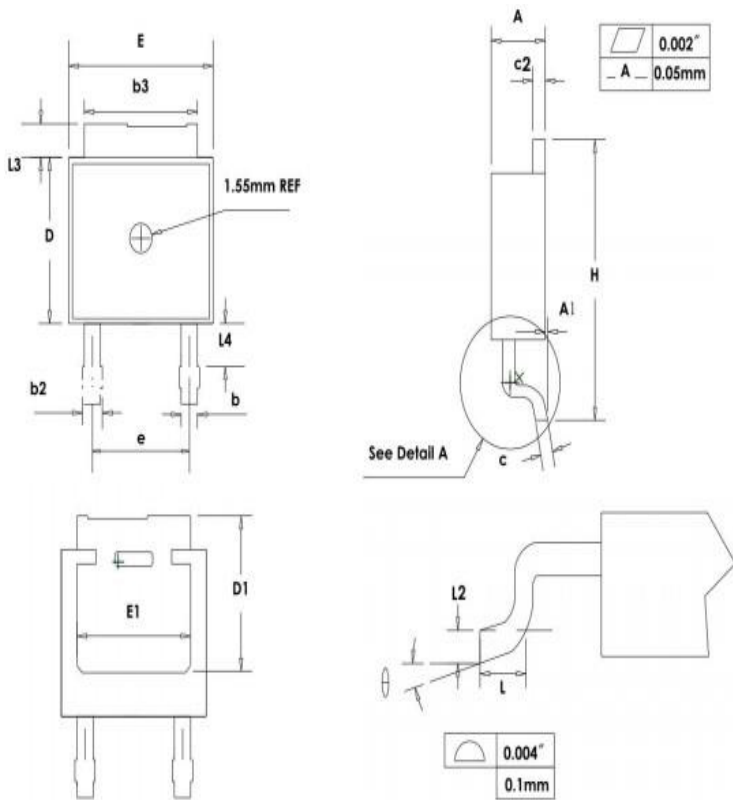
TO-220-2



Outline Dimensions

Unit: 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°