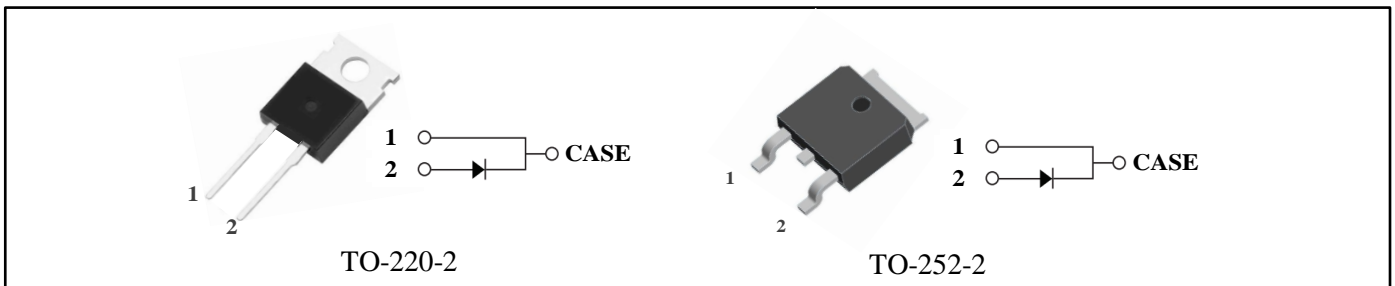


Features

- 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
MPCC10N65A	MPCC10N65A	TO-220-2
MPCD10N65A	MPCD10N65A	TO-252-2

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

Parameter	Symbol	Test Conditions	Value	Unit	Note
			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	$T_C = 25^\circ\text{C}$	29	A	Fig.7
		$T_C = 150^\circ\text{C}$	10		
Non-Repetitive Forward Surge Current	I_{FSM}	$T_C = 25^\circ\text{C}$, $t_p=8.3\text{ms}$, Half Sine Wave	90	A	
Non-Repetitive Peak Forward Current	$I_{F,Max}$	$T_C = 25^\circ\text{C}$, $t_p=10\mu\text{s}$, Pulse	800	A	
Power Dissipation	P_{tot}	$T_C = 25^\circ\text{C}$	139	W	Fig.6
Operating Junction and Storage Temperature	T_J, T_{stg}		-55~+175	$^\circ\text{C}$	



芯善物科技

MPCX10N65A 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	$I_F = 10\text{A}, T_J = 25^\circ\text{C}$	--	1.5	1.65	V	Fig.1
		$I_F = 10\text{A}, T_J = 175^\circ\text{C}$	--	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	$V_R = 0\text{V}, f=1\text{ MHz}$	--	440	--	pF	Fig.3
		$V_R = 200\text{V}, f=1\text{ MHz}$	--	54	--		
		$V_R = 400\text{V}, f=1\text{ MHz}$	--	45	--		
Total Capacitive charge	Q_c	$V_{DD} = 400\text{V}, T_J = 25^\circ\text{C},$ $Q_c = \int_0^{V_R} C(V) dV$		25		nC	Fig.4
Capacitance Stored Energy	E_c	$V_R = 400\text{V}$		6.5		uJ	Fig.5

Thermal Characteristics				
Parameter	Symbol	Typ.	Unit	Note
		220-252		
Thermal Resistance from Junction to Case	R_{thJC}	1.09	$^\circ\text{C/W}$	Fig.8

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

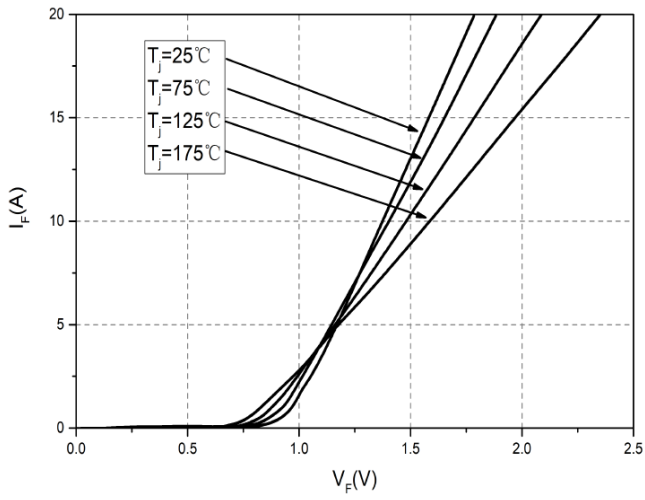


Figure 1. Forward Characteristics

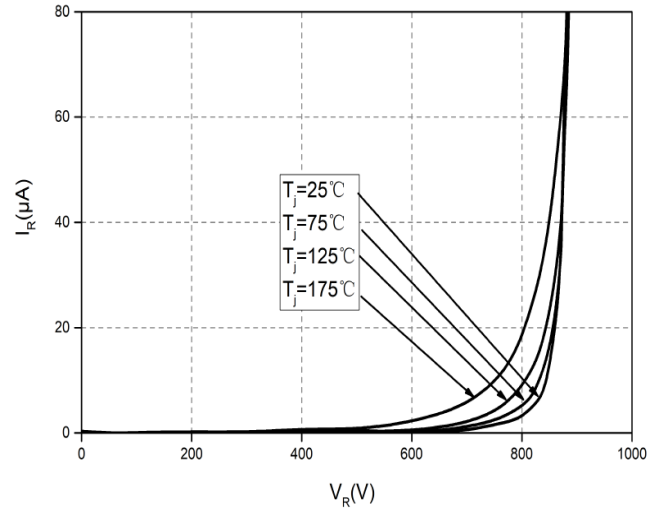


Figure 2. Reverse Characteristics

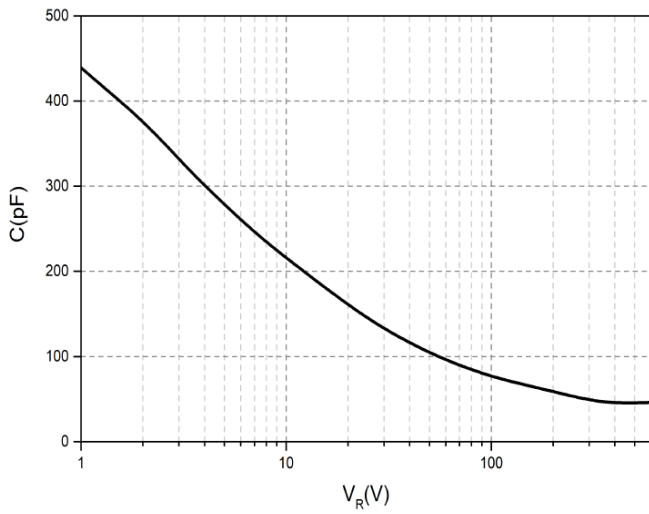


Figure 3. Capacitance vs. Reverse Voltage

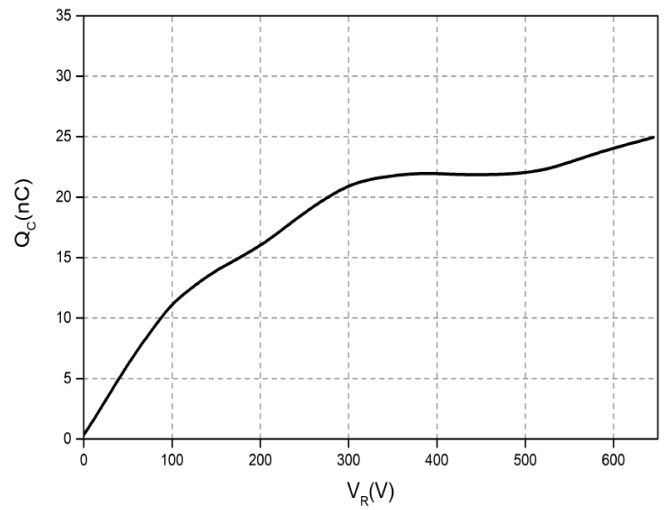


Figure 4. Total Capacitance Charge vs. Reverse Voltage

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

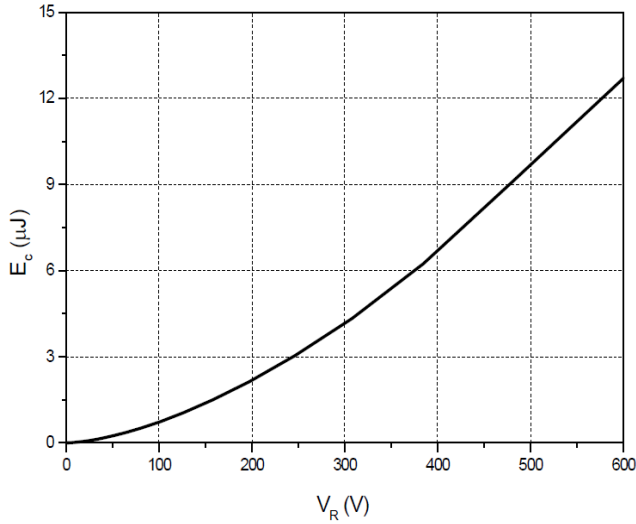


Figure 5. Capacitance Stored Energy

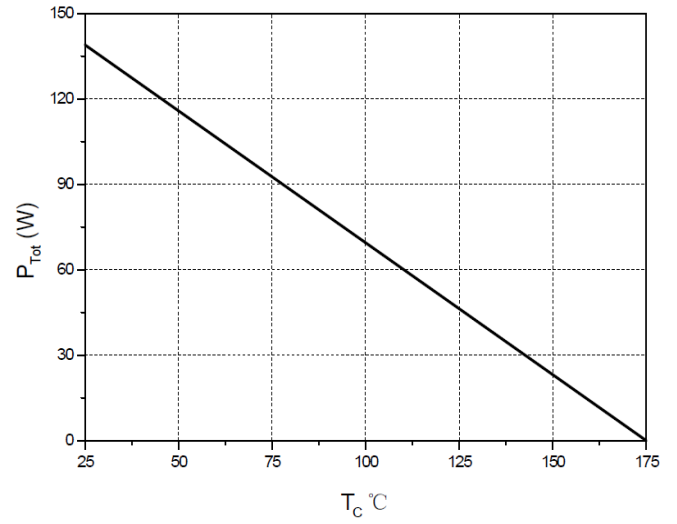


Figure 6. Power Derating

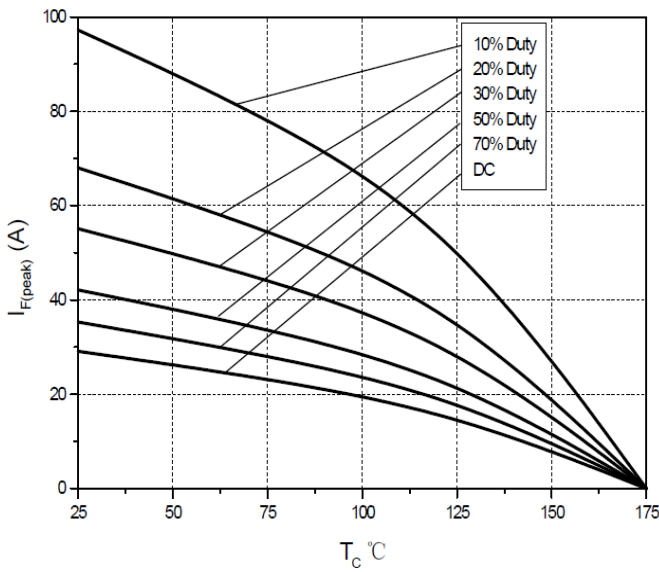


Figure 7. Current Derating

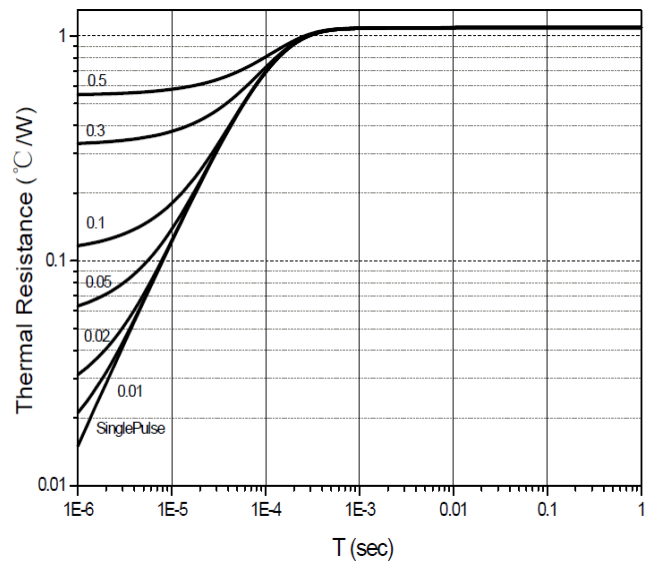
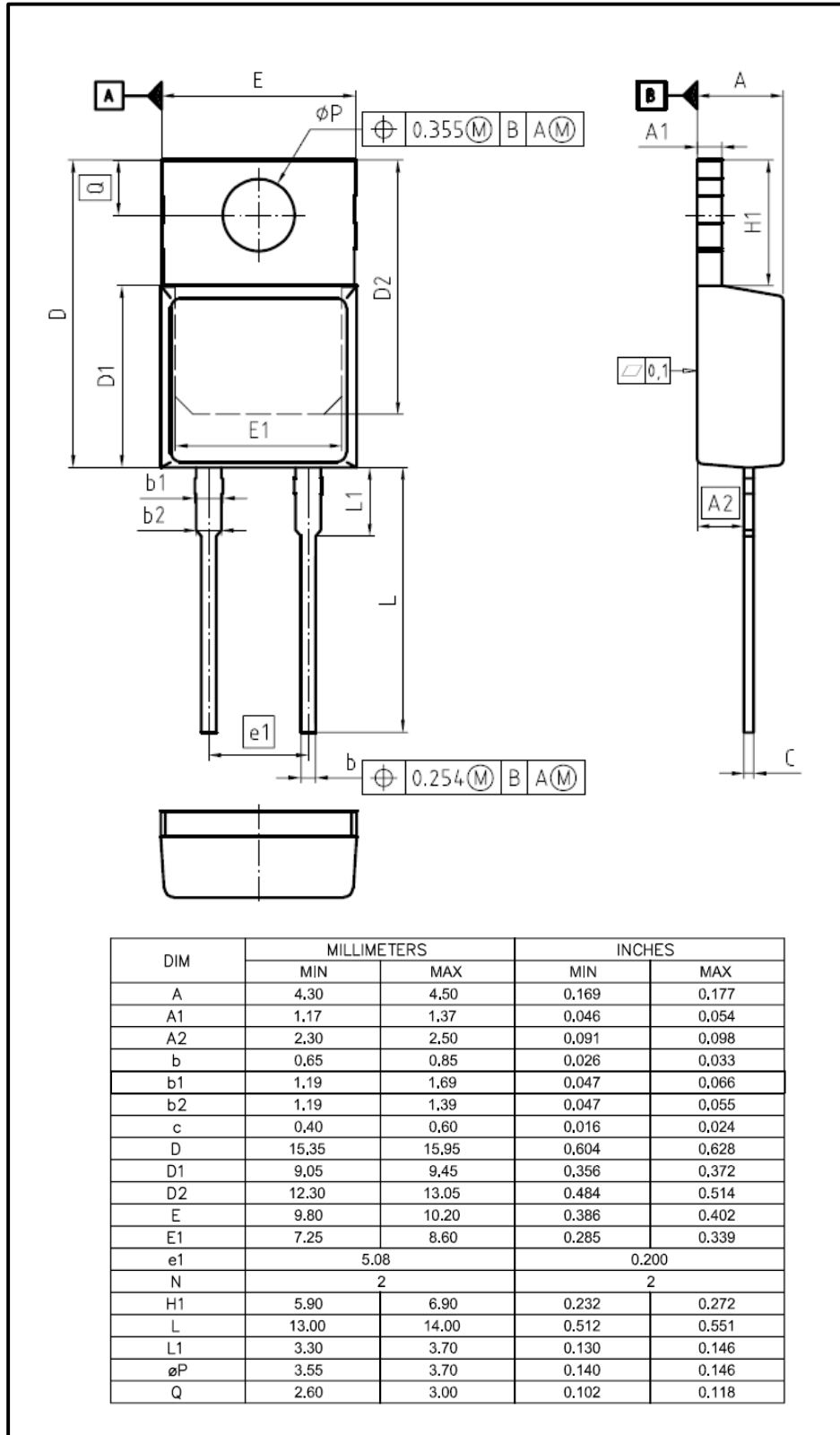


Figure 8. Transient Thermal Impedance

Outline Dimensions

Unit: um

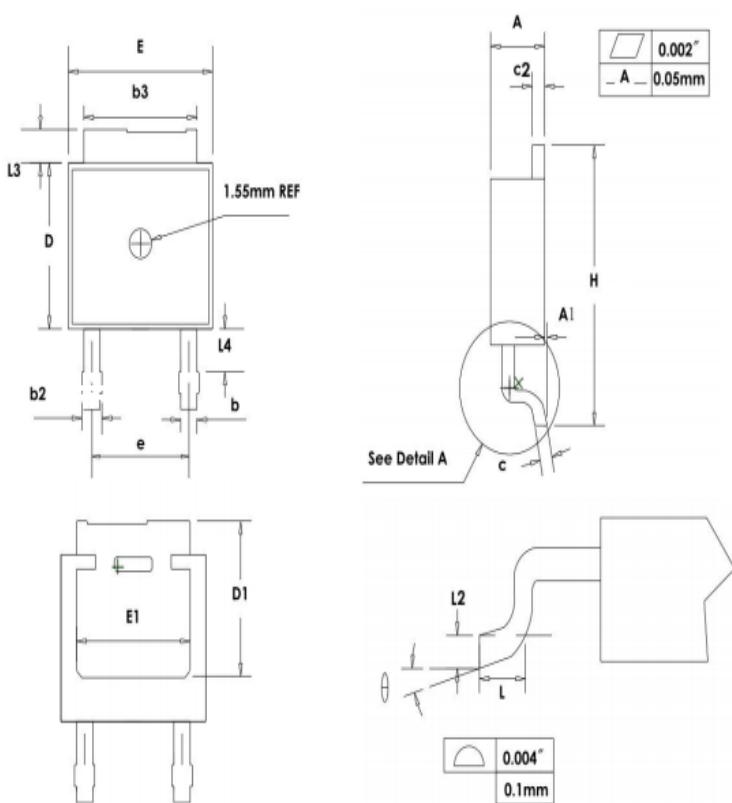
TO-220-2



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°