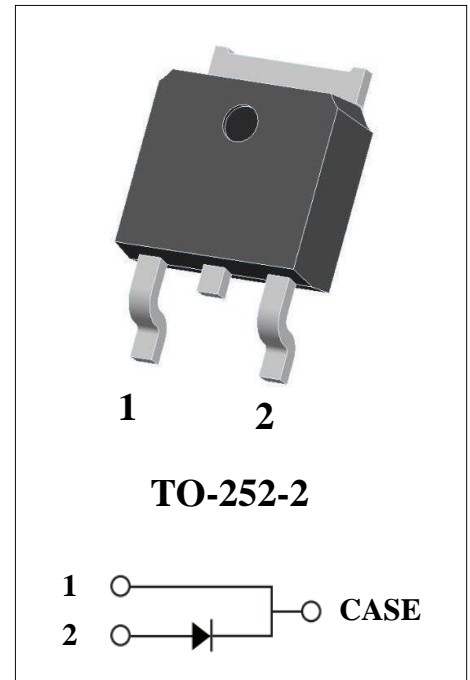


### Features

- 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)



Ordering Information		
Type N0.	Marking	Package
MPCD6N65A	MPCD6N65A	TO-252-2

Absolute Maximum Ratings $T_C = 25^\circ\text{C}$ , unless otherwise noted					
Parameter	Symbol	Test Conditions	Value	Unit	Note
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	$I_F$	$T_C = 25^\circ\text{C}$	22	A	Fig.7
		$T_C = 150^\circ\text{C}$	6		
Non-Repetitive Forward Surge Current	$I_{FSM}$	$T_C = 25^\circ\text{C}$ , $t_p=8.3\text{ms}$ , Half Sine Wave	60	A	
Non-Repetitive Peak Forward Current	$I_{F,Max}$	$T_C = 25^\circ\text{C}$ , $t_p=10\mu\text{s}$ , Pulse	500	A	
Power Dissipation	$P_{tot}$	$T_C = 25^\circ\text{C}$	101	W	Fig.6
Operating Junction and Storage Temperature	$T_J, T_{stg}$		-55~+175	$^\circ\text{C}$	



Electrical Characteristics $T_J = 25^\circ\text{C}$ , unless otherwise noted							
Parameter	Symbol	Test Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
Forward Voltage	$V_F$	$I_F = 6\text{A}, T_J = 25^\circ\text{C}$	--	1.4	1.65	V	Fig.1
		$I_F = 6\text{A}, T_J = 175^\circ\text{C}$	--	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	$V_R = 0\text{V}, f=1\text{ MHz}$	--	300	--	pF	Fig.3
		$V_R = 200\text{V}, f=1\text{ MHz}$	--	34	--		
		$V_R = 400\text{V}, f=1\text{ MHz}$	--	30	--		
Total Capacitive charge	$Q_c$	$V_{DD} = 400\text{V}, T_J = 25^\circ\text{C},$ $Q_c = \int_0^{V_R} C(V)dV$		18		nC	Fig.4
Capacitance Stored Energy	$E_c$	$V_R = 400\text{V}$		4.3		uJ	Fig.5

Thermal Characteristics				
Parameter	Symbol	Typ.	Unit	Note
Thermal Resistance from Junction to Case	$R_{thJC}$	1.5	$^\circ\text{C}/\text{W}$	Fig.8

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

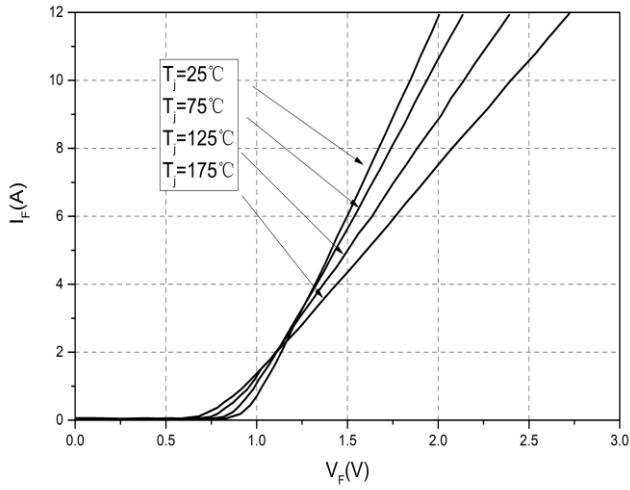


Figure 1. Forward Characteristics

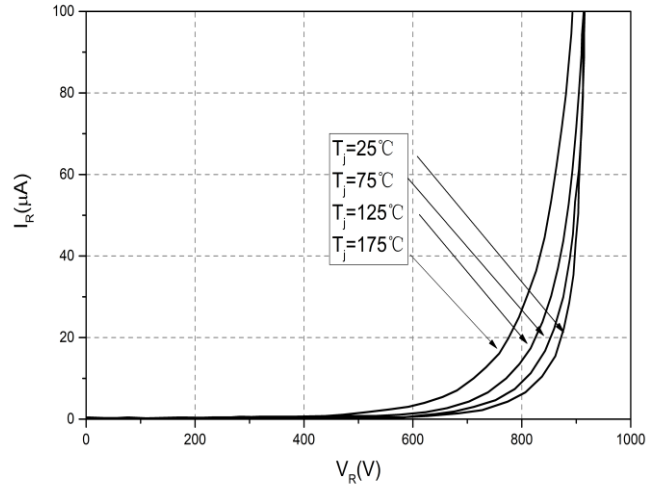


Figure 2. Reverse Characteristics

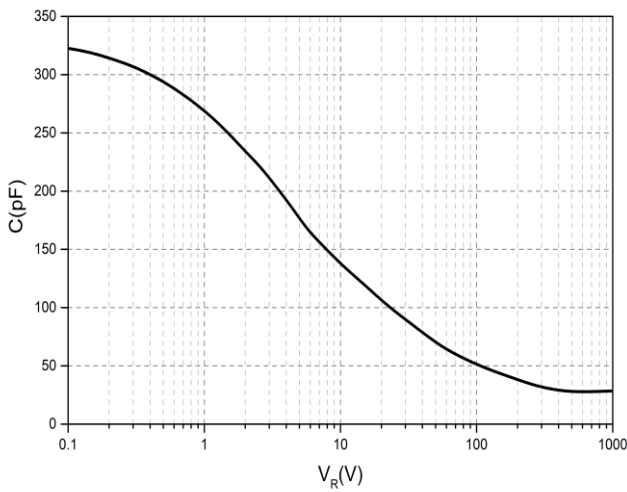


Figure 3. Capacitance vs. Reverse Voltage

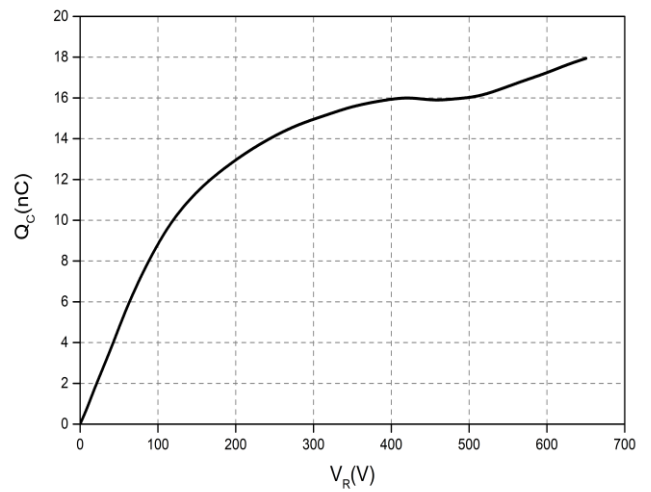


Figure 4. Total Capacitance Charge vs. Reverse Voltage

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

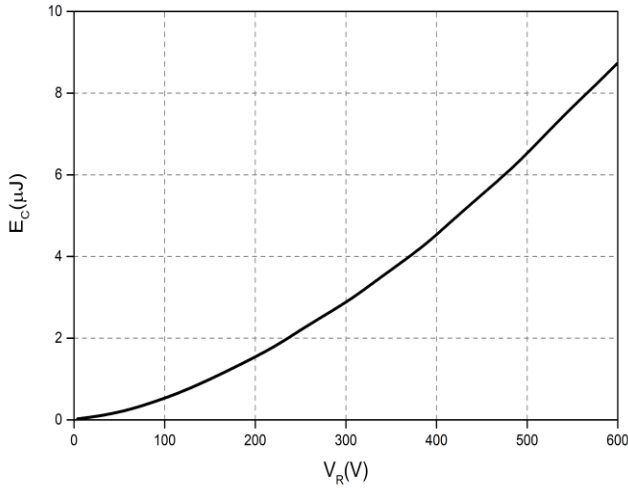


Figure 5. Capacitance Stored Energy

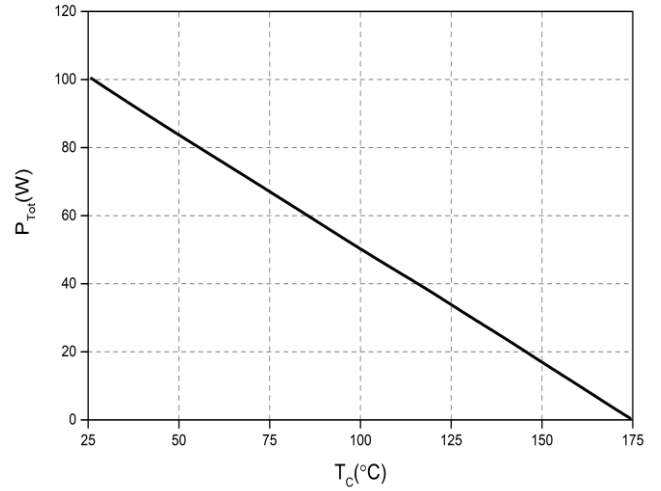


Figure 6. Power derating

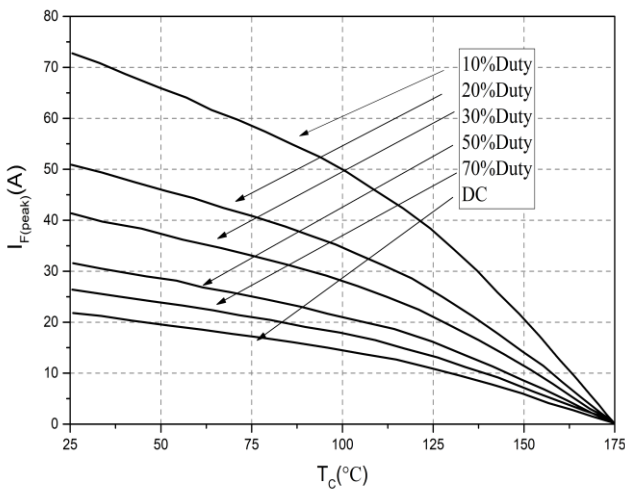


Figure 7. Current Derating

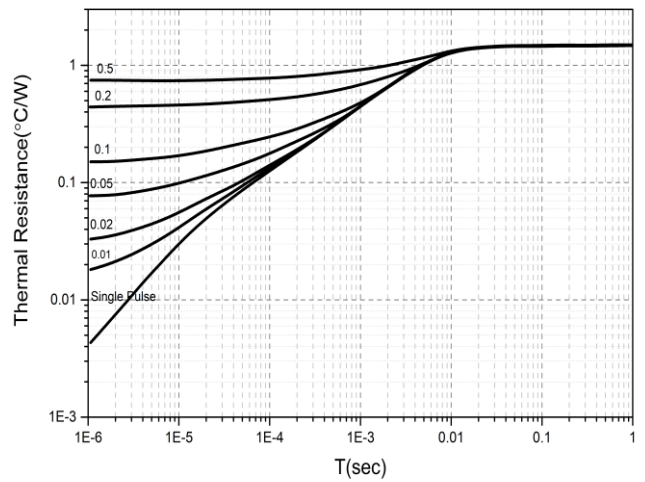
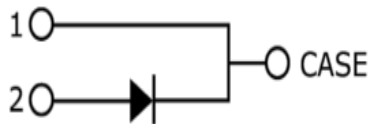
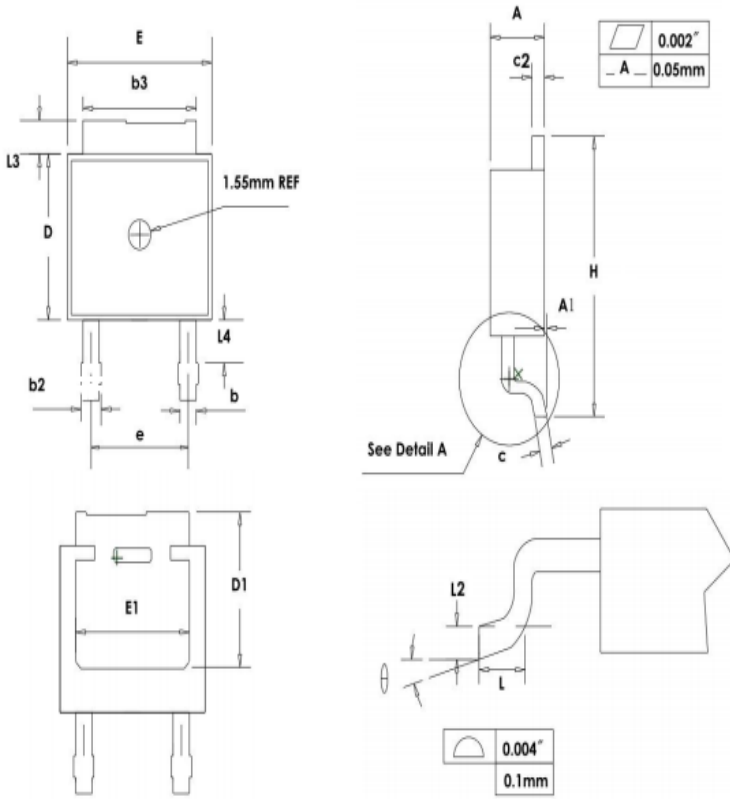


Figure 8. Transient Thermal Impedance

## Outline Dimensions

Unit: um

### TO-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
$\theta$	0°	8°