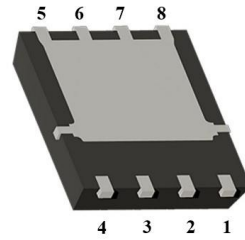
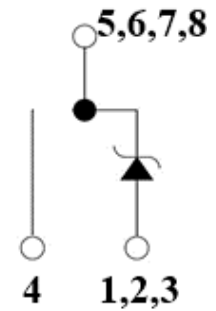


Product Summary

$V_R = 650\text{ V}$
 $I_F = 6\text{ A}$ ($T_C=148^\circ\text{C}$)
 $Q_c = 15\text{ nC}$ ($V_R=400\text{ V}$)



DFN 5x6



Features

- Zero Forward/Reverse Recovery Current
- High Blocking Voltage
- High Frequency Operation
- Positive Temperature Coefficient on V_F
- Temperature Independent Switching Behavior
- High surge current capability

Benefits

- Higher System Efficiency
- Parallel Device Convenience without thermal runaway
- Higher Temperature Application
- No Switching loss
- Hard Switching & Higher Reliability
- Environmental Protection

Applications

- PC Power
- Server Power Supply
- PFC Boost Topology
- AC/DC converters
- DC/DC converters
- Uninterruptable power supplies

Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}		650	V
Peak Reverse Surge Voltage	V_{RSM}		650	V
DC Blocking Voltage	V_R		650	V
Continuous Forward Current	I_F	$T_C=25^\circ\text{C}$ $T_C=135^\circ\text{C}$ $T_C=148^\circ\text{C}$	16 7.5 6	A
Non repetitive Forward Surge Current	I_{FSM}	$T_C = 25^\circ\text{C}$, $t_p=10\text{ ms}$, Half Sine Pulse $T_C = 110^\circ\text{C}$, $t_p=10\text{ ms}$, Half Sine Pulse $T_C = 25^\circ\text{C}$, $t_p=10\ \mu\text{s}$, Square	33 25 200	A
Repetitive peak Forward Surge Current	I_{FRM}	$T_C = 25^\circ\text{C}$, $t_p=10\text{ ms}$, Freq = 0.1Hz, 100 cycles, Half Sine Pulse $T_C = 110^\circ\text{C}$, $t_p=10\text{ ms}$, Freq = 0.1Hz, 100 cycles, Half Sine Pulse	25 20	A
Total power dissipation	P_D	$T_C=25^\circ\text{C}$	60	W
Operating Junction Temperature	T_J		-55 to 175	$^\circ\text{C}$
Storage Temperature	T_{STG}		-55 to 175	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Electrical Characteristics

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
DC Blocking Voltage	V_{DC}	$I_R = 250\mu A, T_J = 25^\circ C$	650			V
Forward Voltage	V_F	$I_F = 6A, T_J = 25^\circ C$		1.45	1.8	V
		$I_F = 6A, T_J = 125^\circ C$		1.6		
		$I_F = 6A, T_J = 175^\circ C$		1.75		V
Reverse Current	I_R	$V_R = 650V, T_J = 25^\circ C$		5	80	μA
		$V_R = 650V, T_J = 125^\circ C$		25		μA
		$V_R = 650V, T_J = 175^\circ C$		60		μA
Total Capacitive Charge	Q_C	$V_R = 400V$ $T_J = 25^\circ C$		15		nC
Total Capacitance	C	$V_R = 1V, T_J = 25^\circ C,$ Freq = 1MHz		240		pF
		$V_R = 200V, T_J = 25^\circ C,$ Freq = 1MHz		30		
		$V_R = 400V, T_J = 25^\circ C,$ Freq = 1MHz		22		

Note: This is a majority carrier diode, so there is no reverse recovery charge

Thermal Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Thermal Resistance	$R_{th(j-c)}$	junction-case		2.5		$^\circ C/W$

Typical Electrical Curves

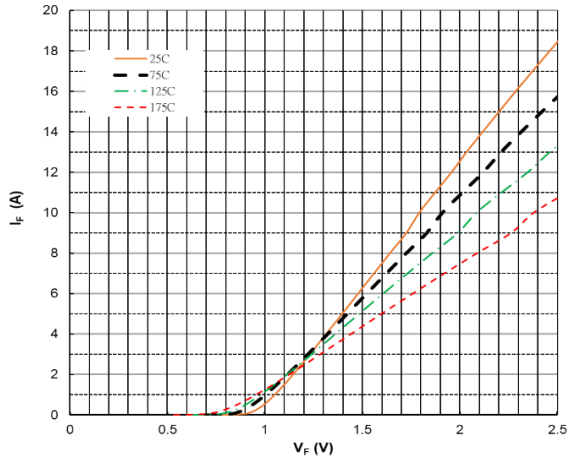


Figure 1. Forward Characteristics

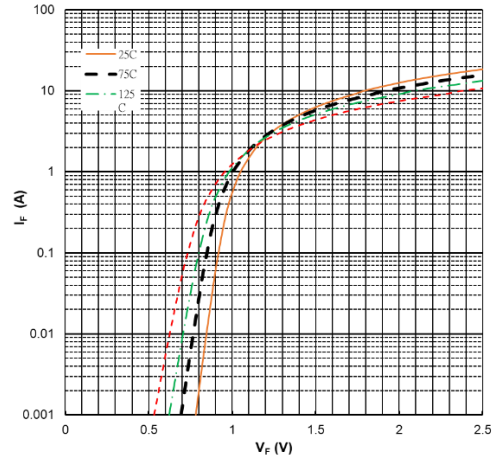


Figure 2. Forward Characteristics

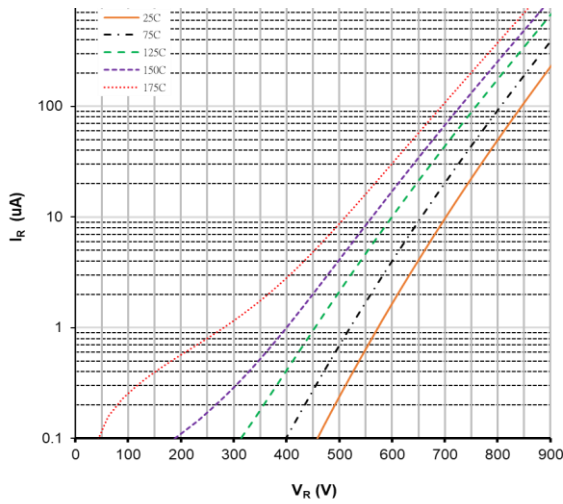


Figure 3. Reverse Characteristics

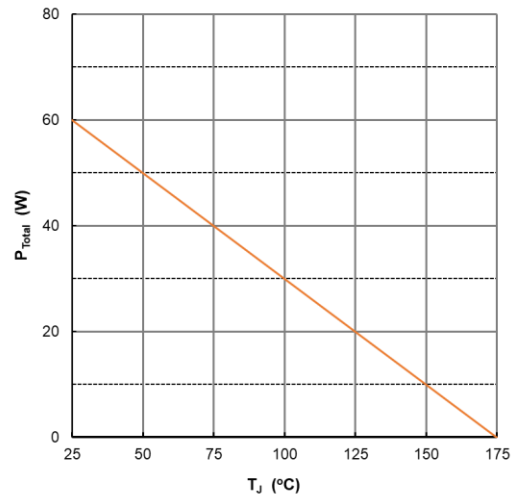


Figure 4. Power Derating

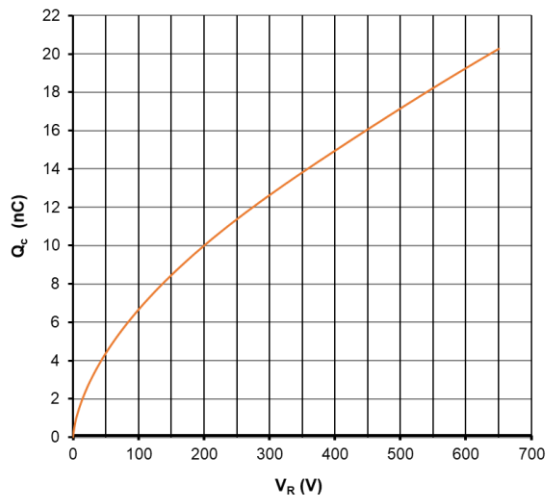


Figure 5. Reverse charge vs. Reverse Voltage

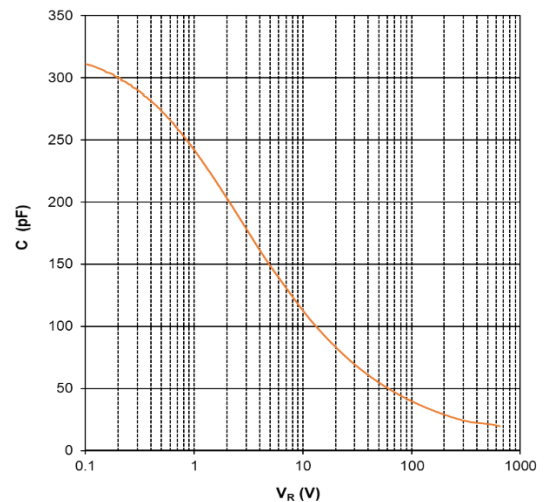
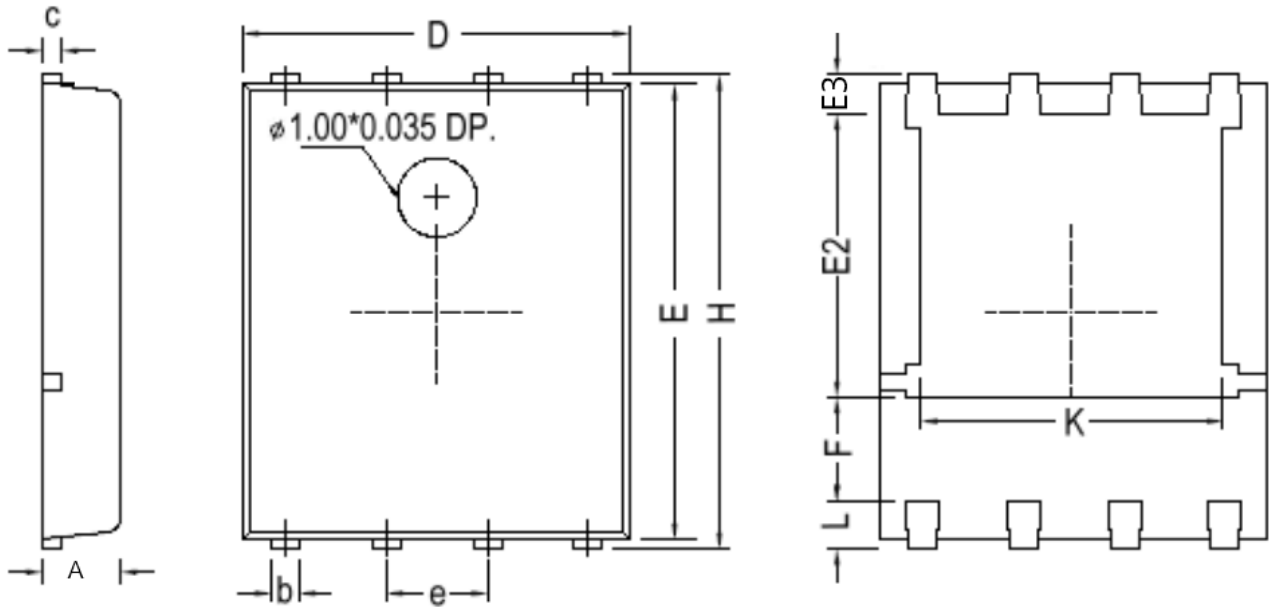


Figure 6. Capacitance vs. Reverse Voltage

Package Dimensions

(DFN 5x6 Package)



Items	Millimeters		
	Min.	Nom.	Max.
A	1.0	1.1	1.2
b	0.3	0.4	0.5
c	0.244	0.254	0.264
D	5.0	5.2	5.4
E	5.66	5.86	6.06
E2	3.52	3.72	3.92
E3	0.4	0.5	0.6
e	1.17	1.27	1.37
F	1.15	1.3	1.45
H	5.95	6.15	6.35
L	0.3	0.6	0.7
K	3.8	4.1	4.25

Ordering Information

Part Number	Package	Packing	Marking	Base Quantity
KN3D06065N	DFN 5x6	Tape & Reel	KN3D06065N	3000

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