

OM60N10NK ($T_c = 25^\circ\text{C}$ unless otherwise specified)

Avalanche Characteristics		Min.	Typ.	Max.	Units	Test Conditions
I_{AR}	Avalanche Current			60	A	(repetitive or non-repetitive, $T_j = 25^\circ\text{C}$)
E_{AS}	Single Pulse Avalanche Energy			720	mJ	(starting $T_j = 25^\circ\text{C}$, $I_D = I_{AR}$, $V_{DD} = 25\text{ V}$)
E_{AR}	Repetitive Avalanche Energy			100	mJ	(pulse width limited by T_{jmax} , $d < 1\%$)
I_{AR}	Avalanche Current			37	A	(repetitive or non-repetitive, $T_j = 100^\circ\text{C}$)
Electrical Characteristics - OFF						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	100			V	$I_D = 250\text{ }\mu\text{A}$, $V_{GS} = 0$
I_{DSS}	Zero Gate Voltage Drain Current ($V_{GS} = 0$)			250 1000	μA μA	$V_{DS} = \text{Max. Rat.}$ $V_{DS} = \text{Max. Rat.} \times 0.8$, $T_c = 125^\circ\text{C}$
I_{GSS}	Gate-Body Leakage Current ($V_{DS} = 0$)			± 100	nA	$V_{GS} = \pm 20\text{ V}$
Electrical Characteristics - ON*						
$V_{GS(th)}$	Gate Threshold Voltage	2		4	V	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{A}$
$R_{DS(on)}$	Static Drain-Source On Resistance			0.025 0.05		$V_{GS} = 10\text{ V}$, $I_D = 30\text{ A}$ $T_c = 100^\circ\text{C}$
$I_{D(on)}$	On State Drain Current	60			A	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, $V_{GS} = 10\text{ V}$
Electrical Characteristics - Dynamic						
g_{fs}	Forward Transductance	25			S	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, $I_D = 30\text{ A}$
C_{ies}	Input Capacitance		4000		pF	$V_{DS} = 25\text{ V}$
C_{oss}	Output Capacitance		1100		pF	$V_{GS} = 0$
C_{res}	Reverse Transfer Capacitance		250		pF	$f = 1\text{ MHz}$
Electrical Characteristics - Switching On						
$T_{d(on)}$	Turn-On Time		90		nS	$V_{DD} = 80\text{ V}$, $I_D = 30\text{ A}$
t_r	Rise Time		270		nS	$R_G = 50$, $V_{GS} = 10\text{ V}$
$(di/dt)_{on}$	Turn-On Current Slope		270		A/ μS	$V_{DD} = 80\text{ V}$, $I_D = 30\text{ A}$ $R_G = 50$, $V_{GS} = 10\text{ V}$
Q_g	Total Gate Charge		120		nC	$V_{DD} = 80\text{ V}$, $I_D = 30\text{ A}$, $V_{GS} = 10\text{ V}$
Electrical Characteristics - Switching Off						
$T_{r(off)}$	Off Voltage Rise Time		200		nS	$V_{DD} = 80\text{ V}$, $I_D = 30\text{ A}$
t_f	Fall Time		210		nS	$R_G = 50$, $V_{GS} = 10\text{ V}$
t_{cross}	Cross-Over Time		410		nS	
Electrical Characteristics - Source Drain Diode						
I_{SD}	Source Drain Current			60	A	
I_{SDM}^*	Source Drain Current (pulsed)			240	A	
V_{SD}	Forward On Voltage			1.6	V	$I_{SD} = 60\text{ A}$, $V_{GS} = 0$
t_r	Reverse Recovery Time		180		nS	$I_{SD} = 60\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$ $V_R = 80\text{ A}$
Q_{rr}	Reverse Recovery Charge		1.8		μC	
I_{RRM}	Reverse Recovery Current		10		A	

*Pulse Test: Pulse width < 300 μsec , Duty Cycle 1.5%.**OM55N10NK** ($T_c = 25^\circ\text{C}$ unless otherwise specified)

Avalanche Characteristics		Min.	Typ.	Max.	Units	Test Conditions
I_{AR}	Avalanche Current			55	A	(repetitive or non-repetitive, $T_j = 25^\circ\text{C}$)
E_{AS}	Single Pulse Avalanche Energy			600	mJ	(starting $T_j = 25^\circ\text{C}$, $I_D = I_{AR}$, $V_{DD} = 25\text{ V}$)
E_{AR}	Repetitive Avalanche Energy			100	mJ	(pulse width limited by T_{jmax} , $d < 1\%$)
I_{AR}	Avalanche Current			37	A	(repetitive or non-repetitive, $T_j = 100^\circ\text{C}$)
Electrical Characteristics - OFF						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	100			V	$I_D = 250\text{ }\mu\text{A}$, $V_{GS} = 0$
I_{DSS}	Zero Gate Voltage Drain Current ($V_{GS} = 0$)			250 1000	μA μA	$V_{DS} = \text{Max. Rat.}$, $V_{DS} = \text{Max. Rat.} \times 0.8$, $T_c = 125^\circ\text{C}$
I_{GSS}	Gate-Body Leakage Current ($V_{DS} = 0$)			± 100	nA	$V_{GS} = \pm 20\text{ V}$
Electrical Characteristics - ON*						
$V_{GS(th)}$	Gate Threshold Voltage	2		4	V	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{A}$
$R_{DS(on)}$	Static Drain-Source On Resistance			0.03 0.06		$V_{GS} = 10\text{ V}$, $I_D = 30\text{ A}$ $T_c = 100^\circ\text{C}$
$I_{D(on)}$	On State Drain Current	55			A	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, $V_{GS} = 10\text{ V}$
Electrical Characteristics - Dynamic						
g_{fs}	Forward Transductance	25			S	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, $I_D = 30\text{ A}$
C_{ies}	Input Capacitance		4000		pF	$V_{DS} = 25\text{ V}$
C_{oss}	Output Capacitance		1100		pF	$V_{GS} = 0$
C_{res}	Reverse Transfer Capacitance		250		pF	$f = 1\text{ MHz}$
Electrical Characteristics - Switching On						
$T_{d(on)}$	Turn-On Time		90		nS	$V_{DD} = 80\text{ V}$, $I_D = 30\text{ A}$
t_r	Rise Time		270		nS	$R_G = 50$, $V_{GS} = 10\text{ V}$
$(di/dt)_{on}$	Turn-On Current Slope		270		A/ μS	$V_{DD} = 80\text{ V}$, $I_D = 30\text{ A}$ $R_G = 50$, $V_{GS} = 10\text{ V}$
Q_g	Total Gate Charge		120		nC	$V_{DD} = 80\text{ V}$, $I_D = 30\text{ A}$, $V_{GS} = 10\text{ V}$
Electrical Characteristics - Switching Off						
$T_{r(off)}$	Off Voltage Rise Time		200		nS	$V_{DD} = 80\text{ V}$, $I_D = 30\text{ A}$
t_f	Fall Time		210		nS	$R_G = 50$, $V_{GS} = 10\text{ V}$
t_{cross}	Cross-Over Time		410		nS	
Electrical Characteristics - Source Drain Diode						
I_{SD}	Source Drain Current			55	A	
I_{SDM}^*	Source Drain Current (pulsed)			180	A	
V_{SD}	Forward On Voltage			1.5	V	$I_{SD} = 55\text{ A}$, $V_{GS} = 0$
t_r	Reverse Recovery Time		180		nS	$I_{SD} = 55\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$ $V_R = 80\text{ A}$
Q_{rr}	Reverse Recovery Charge		1.8		μC	
I_{RRM}	Reverse Recovery Current		10		A	

*Pulse Test: Pulse width < 300 μsec , Duty Cycle 1.5%.

OM75N05NK ($T_C = 25^\circ\text{C}$ unless otherwise specified)

Avalanche Characteristics		Min.	Typ.	Max.	Units	Test Conditions
I_{AR}	Avalanche Current			70	A	(repetitive or non-repetitive, $T_J = 25^\circ\text{C}$)
E_{AS}	Single Pulse Avalanche Energy			900	mJ	(starting $T_J = 25^\circ\text{C}$, $I_D = I_{AR}$, $V_{DD} = 25\text{ V}$)
E_{AR}	Repetitive Avalanche Energy			200	mJ	(pulse width limited by T_{Jmax} , $d < 1\%$)
I_{AR}	Avalanche Current			40	A	(repetitive or non-repetitive, $T_J = 100^\circ\text{C}$)
Electrical Characteristics - OFF						
V_{BRDSS}	Drain-Source Breakdown Voltage	50			V	$I_D = 250\text{ }\mu\text{A}$, $V_{GS} = 0$
I_{DSS}	Zero Gate Voltage Drain Current ($V_{GS} = 0$)			250 1000	μA μA	$V_{DS} = \text{Max. Rat.}$ $V_{DS} = \text{Max. Rat.} \times 0.8$, $T_C = 125^\circ\text{C}$
I_{GSS}	Gate-Body Leakage Current ($V_{DS} = 0$)			± 100	nA	$V_{GS} = \pm 20\text{ V}$
Electrical Characteristics - ON*						
$V_{GS(th)}$	Gate Threshold Voltage	2		4	V	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{A}$
$R_{DS(on)}$	Static Drain-Source On Resistance			0.016 0.032		$V_{GS} = 10\text{ V}$, $I_D = 40\text{ A}$ $T_C = 100^\circ\text{C}$
$I_{D(on)}$	On State Drain Current	75			A	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, $V_{GS} = 10\text{ V}$
Electrical Characteristics - Dynamic						
g_{fs}	Forward Transconductance	25			S	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, $I_D = 40\text{ A}$
C_{iss}	Input Capacitance		4100		pF	$V_{DS} = 25\text{ V}$
C_{oes}	Output Capacitance		1800		pF	$V_{GS} = 0$
C_{rss}	Reverse Transfer Capacitance		420		pF	$f = 1\text{ MHz}$
Electrical Characteristics - Switching On						
$T_{d(on)}$	Turn-On Time		190		nS	$V_{DD} = 20\text{ V}$, $I_D = 40\text{ A}$
t_r	Rise Time		900		nS	$R_G = 50$, $V_{GS} = 10\text{ V}$
$(di/dt)_{on}$	Turn-On Current Slope		150		A/ μS	$V_{DD} = 20\text{ V}$, $I_D = 40\text{ A}$ $R_G = 50$, $V_{GS} = 10\text{ V}$
Q_{gi}	Total Gate Charge		130		nC	$V_{DD} = 20\text{ V}$, $I_D = 40\text{ A}$, $V_{GS} = 10\text{ V}$
Electrical Characteristics - Switching Off						
$T_{r(off)}$	Off Voltage Rise Time		360		nS	$V_{DD} = 35\text{ V}$, $I_D = 75\text{ A}$
t_f	Fall Time		280		nS	$R_G = 50$, $V_{GS} = 10\text{ V}$
t_{cross}	Cross-Over Time		600		nS	
Electrical Characteristics - Source Drain Diode						
I_{SD}	Source Drain Current			75	A	
I_{SDM}^*	Source Drain Current (pulsed)			300	A	
V_{SD}	Forward On Voltage			1.5	V	$I_{SD} = 75\text{ A}$, $V_{GS} = 0$
t_{rr}	Reverse Recovery Time		120		nS	$I_{SD} = 75\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$ $V_R = 20\text{ V}$
Q_{rr}	Reverse Recovery Charge		0.45		μC	
I_{RRM}	Reverse Recovery Current		6.5		A	

*Pulse Test: Pulse width < 300 μsec , Duty Cycle 1.5%.**OM75N06NK** ($T_C = 25^\circ\text{C}$ unless otherwise specified)

Avalanche Characteristics		Min.	Typ.	Max.	Units	Test Conditions
I_{AR}	Avalanche Current			70	A	(repetitive or non-repetitive, $T_J = 25^\circ\text{C}$)
E_{AS}	Single Pulse Avalanche Energy			900	mJ	(starting $T_J = 25^\circ\text{C}$, $I_D = I_{AR}$, $V_{DD} = 25\text{ V}$)
E_{AR}	Repetitive Avalanche Energy			200	mJ	(pulse width limited by T_{Jmax} , $d < 1\%$)
I_{AR}	Avalanche Current			40	A	(repetitive or non-repetitive, $T_J = 100^\circ\text{C}$)
Electrical Characteristics - OFF						
V_{BRDSS}	Drain-Source Breakdown Voltage	60			V	$I_D = 250\text{ }\mu\text{A}$, $V_{GS} = 0$
I_{DSS}	Zero Gate Voltage Drain Current ($V_{GS} = 0$)			250 1000	μA μA	$V_{DS} = \text{Max. Rat.}$ $V_{DS} = \text{Max. Rat.} \times 0.8$, $T_C = 125^\circ\text{C}$
I_{GSS}	Gate-Body Leakage Current ($V_{DS} = 0$)			± 100	nA	$V_{GS} = \pm 20\text{ V}$
Electrical Characteristics - ON*						
$V_{GS(th)}$	Gate Threshold Voltage	2		4	V	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{A}$
$R_{DS(on)}$	Static Drain-Source On Resistance			0.016 0.032		$V_{GS} = 10\text{ V}$, $I_D = 40\text{ A}$ $T_C = 100^\circ\text{C}$
$I_{D(on)}$	On State Drain Current	75			A	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, $V_{GS} = 10\text{ V}$
Electrical Characteristics - Dynamic						
g_{fs}	Forward Transconductance	25			S	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, $I_D = 40\text{ A}$
C_{iss}	Input Capacitance		4100		pF	$V_{DS} = 25\text{ V}$
C_{oes}	Output Capacitance		1800		pF	$V_{GS} = 0$
C_{rss}	Reverse Transfer Capacitance		420		pF	$f = 1\text{ MHz}$
Electrical Characteristics - Switching On						
$T_{d(on)}$	Turn-On Time		190		nS	$V_{DD} = 25\text{ V}$, $I_D = 40\text{ A}$
t_r	Rise Time		900		nS	$R_G = 50$, $V_{GS} = 10\text{ V}$
$(di/dt)_{on}$	Turn-On Current Slope		150		A/ μS	$V_{DD} = 25\text{ V}$, $I_D = 40\text{ A}$ $R_G = 50$, $V_{GS} = 10\text{ V}$
Q_{gi}	Total Gate Charge		130		nC	$V_{DD} = 25\text{ V}$, $I_D = 40\text{ A}$, $V_{GS} = 10\text{ V}$
Electrical Characteristics - Switching Off						
$T_{r(off)}$	Off Voltage Rise Time		360		nS	$V_{DD} = 40\text{ V}$, $I_D = 75\text{ A}$
t_f	Fall Time		280		nS	$R_G = 50$, $V_{GS} = 10\text{ V}$
t_{cross}	Cross-Over Time		600		nS	
Electrical Characteristics - Source Drain Diode						
I_{SD}	Source Drain Current			75	A	
I_{SDM}^*	Source Drain Current (pulsed)			300	A	
V_{SD}	Forward On Voltage			1.5	V	$I_{SD} = 75\text{ A}$, $V_{GS} = 0$
t_{rr}	Reverse Recovery Time		120		nS	$I_{SD} = 75\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$ $V_R = 25\text{ V}$
Q_{rr}	Reverse Recovery Charge		0.45		μC	
I_{RRM}	Reverse Recovery Current		6.5		A	

*Pulse Test: Pulse width < 300 μsec , Duty Cycle 1.5%.

OM55N10NK - OM75N06NK

ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise noted)

Parameter		60N10NK	55N10NK	75N06NK	75N05NK	Units
V _{DS}	Drain-Source Voltage	100	100	60	50	V
V _{DGR}	Drain-Gate Voltage (R _{GS} = 1 M)	100	100	60	50	V
I _D @ T _C = 25°C	Continuous Drain Current ²	60	55	75	75	A
I _D @ T _C = 100°C	Continuous Drain Current ²	37	33	45	45	A
I _{DM}	Pulsed Drain Current ¹	180	180	225	225	A
P _D @ T _C = 25°C	Maximum Power Dissipation	130	130	130	130	W
P _D @ T _C = 100°C	Maximum Power Dissipation	55	55	55	55	W
Junction To Case	Linear Derating Factor	1.00	1.00	1.00	1.00	W/°C
T _J	Operating and					
T _{stg}	Storage Temperature Range	-55 to 150	-55 to 150	-55 to 150	-55 to 150	°C
Lead Temperature	(1/16" from case for 10 secs.)	300	300	300	300	°C

1 Pulse Test: Pulse width 300 μsec. Duty Cycle 2%. 2 Package Limited.

THERMAL RESISTANCE (Maximum) at T_A = 25°C

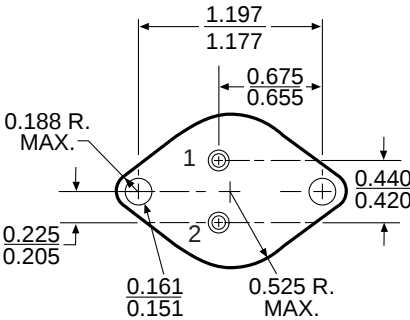
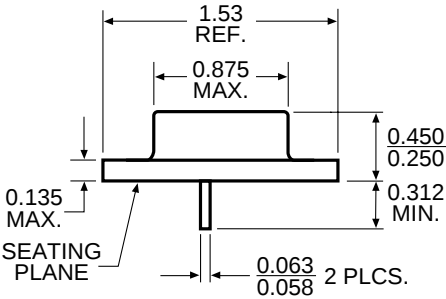
R _{thJC}	Junction-to-Case	1.0	°C/W	
R _{thJA}	Junction-to-Ambient	30	°C/W	Free Air Operation

PACKAGE LIMITATIONS

Parameter		Unit
I _D	Continuous Drain Current	35 A
	Linear Derating Factor, Junction-to-Ambient	.033 W/°C

3.1

MECHANICAL OUTLINE



Pin Connection
Pin 1: Gate
Pin 2: Source
Case: Drain