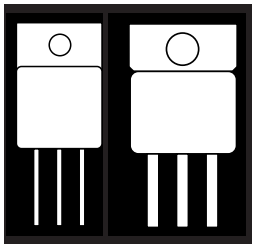
LOW VOLTAGE, LOW $R_{DS(on)}$ POWER MOSFETS IN HERMETIC ISOLATED PACKAGE



50V, 60V, And 100V Ultra Low $R_{DS(on)}$ Power MOSFETs In TO-254 And TO-258 Isolated Packages

FEATURES

- Isolated Hermetic Metal Packages
- Ultra Low $R_{DS(on)}$
- Low Conductive Loss/Low Gate Charge
- Available Screened To MIL-S-19500, TX, TXV And S Levels
- Ceramic Feedthroughs available

DESCRIPTION

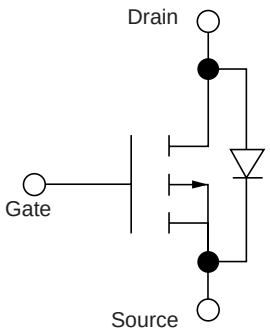
This series of hermetic packaged MOSFETs are ideally suited for low voltage applications; battery powered voltage power supplies, motor controls, dc to dc converters and synchronous rectification. The low conduction loss allows smaller heat sinking and the low gate change simpler drive circuitry.

MAXIMUM RATINGS (Per Device)

PART NO.	V_{DS} (V)	$R_{DS(on)}$ ( )	I_D (A)	Package
OM60N10SC	100	.025	60	TO-258AA
OM55N10SC	100	.030	55	TO-258AA
OM55N10SA	100	.035	55	TO-254AA
OM75N06SC	60	.016	75	TO-258AA
OM75N06SA	60	.018	75	TO-254AA
OM75N05SC	50	.016	75	TO-258AA
OM75N05SA	50	.018	75	TO-254AA

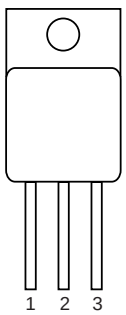
3.1

SCHEMATIC



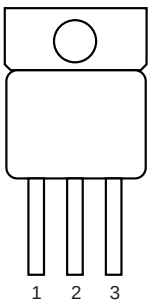
PIN CONNECTION

TO-254AA



Pin 1: Drain
Pin 2: Source
Pin 3: Gate

TO-258AA



Pin 1: Drain
Pin 2: Source
Pin 3: Gate

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

	Parameter	60N10SC	55N10SA 55N10SC	75N06SA 75N06SC	75N05SA 75N05SC	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	125	125	125	W
P_D @ T_C = 100°C	Maximum Power Dissipation	55	50	50	50	W
Junction-To-Case	Linear Derating Factor	1.00	1.00	1.00	1.00	W/°C
T_J T_{stg}	Operating and 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 1.5%.
2 Package Limited: SA I_D = 25A & SC I_D = 35A @ 25°C

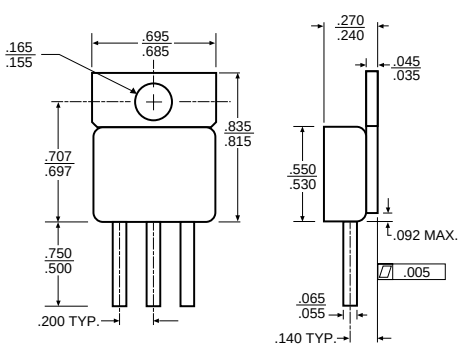
THERMAL RESISTANCE

R_{thJC}	Junction-to-Case	1.0	°C/W

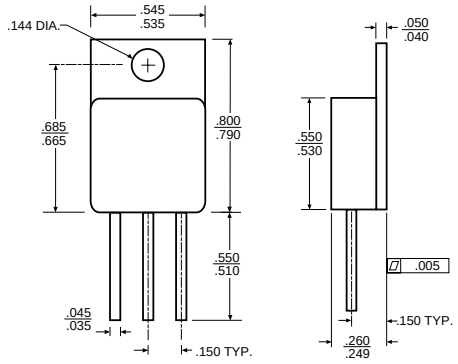
PACKAGE LIMITATIONS

	Parameters	TO254AA	TO-258AA	Unit
I_D	Continuous Drain Current	25	35	A
	Linear Derating Factor, Junction-to-Ambient	.020	.025	W/°C
R_{thJA}	Thermal Resistance, Junction-to-Ambient (Free Air Operation)	50	40	°C/W

MECHANICAL OUTLINE

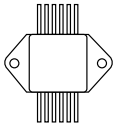


TO-258AA

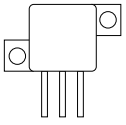


TO-254AA

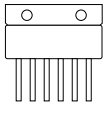
PACKAGE OPTIONS



MOD PAK



Z-TAB



6 PIN SIP

Note: MOSFETs are also available in Z-Tab, dual and quad pak styles. Duals and quads available in non-gate versions only. Please call the factory for more information.

OM60N10SC (T_C = 25°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°C)
E_{AS}	Single Pulse Avalanche Energy			720	mJ	(starting T_J = 25°C, $I_D = I_{AR}$, V_{DD} = 25 V)
E_{AR}	Repetitive Avalanche Energy			100	mJ	(pulse width limited by $T_{j\,max}$, d < 1%)
I_{AR}	Avalanche Current			37	A	(repetitive or non-repetitive, T_J = 100°C)
Electrical Characteristics - OFF						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	100			V	I_D = 250 µA, V_{GS} = 0
I_{DSS}	Zero Gate Voltage Drain Current (V_{GS} = 0)			250 1000	µA µA	V_{DS} = Max. Rat. V_{DS} = Max. Rat. x 0.8, T_C = 125°C
I_{GSS}	Gate-Body Leakage Current (V_{DS} = 0)			±100	nA	V_{GS} = ±20 V
Electrical Characteristics - ON*						
$V_{GS(th)}$	Gate Threshold Voltage	2		4	V	$V_{DS} = V_{GS}$, I_D = 250 µA
$R_{DS(on)}$	Static Drain-Source On Resistance			0.025 0.05		V_{GS} = 10 V, I_D = 30 A T_C = 100°C
$I_{D(on)}$	On State Drain Current	60			A	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, V_{GS} = 10 V
Electrical Characteristics - Dynamic						
g_{fs}	Forward Transconductance	25			S	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, I_D= 30 A
C_{ies}	Input Capacitance		4000		pF	V_{DS} = 25 V
C_{oes}	Output Capacitance		1100		pF	V_{GS} = 0
C_{res}	Reverse Transfer Capacitance		250		pF	f = 1 mHz
Electrical Characteristics - Switching On						
$T_{d(on)}$	Turn-On Time		90		nS	V_{DD} = 80 V, I_D = 30 A
t_r	Rise Time		270		nS	R_G = 50 , V_{GS} = 10 V
$(di/dt)_{on}$	Turn-On Current Slope		270		A/µS	V_{DD} = 80 V, I_D = 30 A R_G = 50 , V_{GS} = 10 V
Q_g	Total Gate Charge		120		nC	V_{DD} = 80 V, I_D = 30 A, V_{GS} = 10 V
Electrical Characteristics - Switching Off						
$T_{r(Voff)}$	Off Voltage Rise Time		200		nS	V_{DD} = 80 V, I_D = 30 A
t_f	Fall Time		210		nS	R_G = 50 , V_{GS} = 10 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 A, V_{GS} = 0
t_{rr}	Reverse Recovery Time		180		nS	I_{SD} = 60 A, di/dt = 100 A/µs V_R = 80 V
Q_{rr}	Reverse Recovery Charge		1.8		µC	
I_{RRM}	Reverse Recovery Current		10		A	

*Pulsed: Pulse Duration 300µS, Duty Cycle 1.5%.

OM55N10SC (T_C = 25°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°C)
E_{AS}	Single Pulse Avalanche Energy			600	mJ	(starting T_J = 25°C, $I_D = I_{AR}$, V_{DD} = 25 V)
E_{AR}	Repetitive Avalanche Energy			100	mJ	(pulse width limited by $T_{j\,max}$, d < 1%)
I_{AR}	Avalanche Current			37	A	(repetitive or non-repetitive, T_J = 100°C)
Electrical Characteristics - OFF						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	100			V	I_D = 250 µA, V_{GS} = 0
I_{DSS}	Zero Gate Voltage Drain Current (V_{GS} = 0)			250 1000	µA µA	V_{DS} = Max. Rat. V_{DS} = Max. Rat. x 0.8, T_C = 125°C
I_{GSS}	Gate-Body Leakage Current (V_{DS} = 0)			±100	nA	V_{GS} = ±20 V
Electrical Characteristics - ON*						
$V_{GS(th)}$	Gate Threshold Voltage	2		4	V	$V_{DS} = V_{GS}$, I_D = 250 µA
$R_{DS(on)}$	Static Drain-Source On Resistance			0.03 0.06		V_{GS} = 10 V, I_D = 30 A T_C = 100°C
$I_{D(on)}$	On State Drain Current	55			A	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, V_{GS} = 10 V
Electrical Characteristics - Dynamic						
g_{fs}	Forward Transconductance	25			S	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, I_D= 30 A
C_{ies}	Input Capacitance		4000		pF	V_{DS} = 25 V
C_{oes}	Output Capacitance		1100		pF	V_{GS} = 0
C_{res}	Reverse Transfer Capacitance		250		pF	f = 1 mHz
Electrical Characteristics - Switching On						
$T_{d(on)}$	Turn-On Time		90		nS	V_{DD} = 80 V, I_D = 30 A
t_r	Rise Time		270		nS	R_G = 50 , V_{GS} = 10 V
$(di/dt)_{on}$	Turn-On Current Slope		270		A/µS	V_{DD} = 80 V, I_D = 30 A R_G = 50 , V_{GS} = 10 V
Q_g	Total Gate Charge		120		nC	V_{DD} = 80 V, I_D = 30 A, V_{GS} = 10 V
Electrical Characteristics - Switching Off						
$T_{r(Voff)}$	Off Voltage Rise Time		200		nS	V_{DD} = 80 V, I_D = 30 A
t_f	Fall Time		210		nS	R_G = 50 , V_{GS} = 10 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)			220	A	
V_{SD}	Forward On Voltage			1.5	V	I_{SD} = 55 A, V_{GS} = 0
t_{rr}	Reverse Recovery Time		180		nS	I_{SD} = 55 A, di/dt = 100 A/µs V_R = 80 V
Q_{rr}	Reverse Recovery Charge		1.8		µC	
I_{RRM}	Reverse Recovery Current		11		A	

*Pulsed: Pulse Duration 300µS, Duty Cycle 1.5%.

Omnirel

OM55N10SA (T_C = 25°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°C)
E_{AS}	Single Pulse Avalanche Energy			600	mJ	(starting T_J = 25°C, $I_D = I_{AR}$, V_{DD} = 25 V)
E_{AR}	Repetitive Avalanche Energy			100	mJ	(pulse width limited by $T_{j\,max}$, d < 1%)
I_{AR}	Avalanche Current			37	A	(repetitive or non-repetitive, T_J = 100°C)
Electrical Characteristics - OFF						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	100			V	I_D = 250 µA, V_{GS} = 0
I_{DSS}	Zero Gate Voltage Drain Current (V_{GS} = 0)			250 1000	µA µA	V_{DS} = Max. Rat. V_{DS} = Max. Rat. x 0.8, T_C = 125°C
I_{GSS}	Gate-Body Leakage Current (V_{DS} = 0)			±100	nA	V_{GS} = ±20 V
Electrical Characteristics - ON						
$V_{GS(th)}$	Gate Threshold Voltage	2		4	V	$V_{DS} = V_{GS}$, I_D = 250 µA
$R_{DS(on)}$	Static Drain-Source On Resistance			0.035 0.070		V_{GS} = 10 V, I_D = 30 A T_C = 100°C
$I_{D(on)}$	On State Drain Current	55			A	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, V_{GS} = 10 V
Electrical Characteristics - Dynamic						
g_{fs}	Forward Transconductance	25			S	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, I_D= 30 A
C_{ies}	Input Capacitance		4000		pF	V_{DS} = 25 V
C_{oes}	Output Capacitance		1100		pF	V_{GS} = 0
C_{res}	Reverse Transfer Capacitance		250		pF	f = 1 mHz
Electrical Characteristics - Switching On						
$T_{d(on)}$	Turn-On Time		90		nS	V_{DD} = 80 V, I_D = 30 A
t_r	Rise Time		270		nS	R_G = 50 , V_{GS} = 10 V
$(di/dt)_{on}$	Turn-On Current Slope		270		A/µS	V_{DD} = 80 V, I_D = 30 A R_G = 50 , V_{GS} = 10 V
Q_g	Total Gate Charge		120		nC	V_{DD} = 80 V, I_D = 30 A, V_{GS} = 10 V
Electrical Characteristics - Switching Off						
$T_{r(Voff)}$	Off Voltage Rise Time		200		nS	V_{DD} = 80 V, I_D = 30 A
t_f	Fall Time		210		nS	R_G = 50 , V_{GS} = 10 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 A, V_{GS} = 0
t_{rr}	Reverse Recovery Time		180		nS	I_{SD} = 55 A, di/dt = 100 A/µs V_R = 80 V
Q_{rr}	Reverse Recovery Charge		1.8		µC	
I_{RRM}	Reverse Recovery Current		11		A	

*Pulsed: Pulse Duration 300µS, Duty Cycle 1.5%.

OM75N06SC (T_C = 25°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°C)
E_{AS}	Single Pulse Avalanche Energy			900	mJ	(starting T_J = 25°C, $I_D = I_{AR}$, V_{DD} = 25 V)
E_{AR}	Repetitive Avalanche Energy			200	mJ	(pulse width limited by $T_{j\,max}$, d < 1%)
I_{AR}	Avalanche Current			40	A	(repetitive or non-repetitive, T_J = 100°C)
Electrical Characteristics - OFF						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	60			V	I_D = 250 µA, V_{GS} = 0
I_{DSS}	Zero Gate Voltage Drain Current (V_{GS} = 0)			250 1000	µA µA	V_{DS} = Max. Rat. V_{DS} = Max. Rat. x 0.8, T_C = 125°C
I_{GSS}	Gate-Body Leakage Current (V_{DS} = 0)			±100	nA	V_{GS} = ±20 V
Electrical Characteristics - ON						
$V_{GS(th)}$	Gate Threshold Voltage	2		4	V	$V_{DS} = V_{GS}$, I_D = 250 µA
$R_{DS(on)}$	Static Drain-Source On Resistance			0.016 0.032		V_{GS} = 10 V, I_D = 40 A T_C = 100°C
$I_{D(on)}$	On State Drain Current	75			A	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, V_{GS} = 10 V
Electrical Characteristics - Dynamic						
g_{fs}	Forward Transconductance	25			S	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, I_D= 40 A
C_{ies}	Input Capacitance		4100		pF	V_{DS} = 25 V
C_{oes}	Output Capacitance		1800		pF	V_{GS} = 0
C_{res}	Reverse Transfer Capacitance		420		pF	f = 1 mHz
Electrical Characteristics - Switching On						
$T_{d(on)}$	Turn-On Time		190		nS	V_{DD} = 25 V, I_D = 40 A
t_r	Rise Time		900		nS	R_G = 50 , V_{GS} = 10 V
$(di/dt)_{on}$	Turn-On Current Slope		150		A/µS	V_{DD} = 25 V, I_D = 40 A R_G = 50 , V_{GS} = 10 V
Q_g	Total Gate Charge		130		nC	V_{DD} = 25 V, I_D = 40 A, V_{GS} = 10 V
Electrical Characteristics - Switching Off						
$T_{r(Voff)}$	Off Voltage Rise Time		360		nS	V_{DD} = 40 V, I_D = 75 A
t_f	Fall Time		280		nS	R_G = 50 , V_{GS} = 10 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 A, V_{GS} = 0
t_{rr}	Reverse Recovery Time		120		nS	I_{SD} = 75 A, di/dt = 100 A/µs V_R = 25 V
Q_{rr}	Reverse Recovery Charge		0.45		µC	
I_{RRM}	Reverse Recovery Current		6.5		A	

*Pulsed: Pulse Duration 300µS, Duty Cycle 1.5%.

OM75N06SA (T_C = 25°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°C)
E_{AS}	Single Pulse Avalanche Energy			900	mJ	(starting T_J = 25°C, $I_D = I_{AR}$, V_{DD} = 25 V)
E_{AR}	Repetitive Avalanche Energy			200	mJ	(pulse width limited by $T_{j\,max}$, d < 1%)
I_{AR}	Avalanche Current			40	A	(repetitive or non-repetitive, T_J = 100°C)
Electrical Characteristics - OFF						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	60			V	I_D = 250 µA, V_{GS} = 0
I_{DSS}	Zero Gate Voltage Drain Current (V_{GS} = 0)			250 1000	µA µA	V_{DS} = Max. Rat. V_{DS} = Max. Rat. x 0.8, T_C = 125°C
I_{GSS}	Gate-Body Leakage Current (V_{DS} = 0)			±100	nA	V_{GS} = ±20 V
Electrical Characteristics - ON*						
$V_{GS(th)}$	Gate Threshold Voltage	2		4	V	$V_{DS} = V_{GS}$, I_D = 250 µA
$R_{DS(on)}$	Static Drain-Source On Resistance			0.018 0.036		V_{GS} = 10 V, I_D = 40 A T_C = 100°C
$I_{D(on)}$	On State Drain Current	75			A	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, V_{GS} = 10 V
Electrical Characteristics - Dynamic						
g_{fs}	Forward Transconductance	25			S	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, I_D= 40 A
C_{ies}	Input Capacitance		4100		pF	V_{DS} = 25 V
C_{oes}	Output Capacitance		1800		pF	V_{GS} = 0
C_{res}	Reverse Transfer Capacitance		420		pF	f = 1 mHz
Electrical Characteristics - Switching On						
$T_{d(on)}$	Turn-On Time		190		nS	V_{DD} = 25 V, I_D = 40 A
t_r	Rise Time		900		nS	R_G = 50 , V_{GS} = 10 V
$(di/dt)_{on}$	Turn-On Current Slope		150		A/µS	V_{DD} = 25 V, I_D = 40 A R_G = 50 , V_{GS} = 10 V
Q_g	Total Gate Charge		130		nC	V_{DD} = 25 V, I_D = 40 A, V_{GS} = 10 V
Electrical Characteristics - Switching Off						
$T_{r(Voff)}$	Off Voltage Rise Time		360		nS	V_{DD} = 40 V, I_D = 75 A
t_f	Fall Time		280		nS	R_G = 50 , V_{GS} = 10 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 A, V_{GS} = 0
t_{rr}	Reverse Recovery Time		120		nS	I_{SD} = 75 A, di/dt = 100 A/µs V_R = 25 V
Q_{rr}	Reverse Recovery Charge		0.45		µC	
I_{RRM}	Reverse Recovery Current		6.5		A	

*Pulsed: Pulse Duration 300µS, Duty Cycle 1.5%.

OM75N05SC (T_C = 25°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°C)
E_{AS}	Single Pulse Avalanche Energy			900	mJ	(starting T_J = 25°C, $I_D = I_{AR}$, V_{DD} = 25 V)
E_{AR}	Repetitive Avalanche Energy			200	mJ	(pulse width limited by $T_{j\,max}$, d < 1%)
I_{AR}	Avalanche Current			40	A	(repetitive or non-repetitive, T_J = 100°C)
Electrical Characteristics - OFF						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	50			V	I_D = 250 µA, V_{GS} = 0
I_{DSS}	Zero Gate Voltage Drain Current (V_{GS} = 0)			250 1000	µA µA	V_{DS} = Max. Rat. V_{DS} = Max. Rat. x 0.8, T_C = 125°C
I_{GSS}	Gate-Body Leakage Current (V_{DS} = 0)			±100	nA	V_{GS} = ±20 V
Electrical Characteristics - ON*						
$V_{GS(th)}$	Gate Threshold Voltage	2		4	V	$V_{DS} = V_{GS}$, I_D = 250 µA
$R_{DS(on)}$	Static Drain-Source On Resistance			0.016 0.032		V_{GS} = 10 V, I_D = 40 A T_C = 100°C
$I_{D(on)}$	On State Drain Current	75			A	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, V_{GS} = 10 V
Electrical Characteristics - Dynamic						
g_{fs}	Forward Transconductance	25			S	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, I_D= 40 A
C_{ies}	Input Capacitance		4100		pF	V_{DS} = 25 V
C_{oes}	Output Capacitance		1800		pF	V_{GS} = 0
C_{res}	Reverse Transfer Capacitance		420		pF	f = 1 mHz
Electrical Characteristics - Switching On						
$T_{d(on)}$	Turn-On Time		190		nS	V_{DD} = 20 V, I_D = 40 A
t_r	Rise Time		900		nS	R_G = 50 , V_{GS} = 10 V
$(di/dt)_{on}$	Turn-On Current Slope		150		A/µS	V_{DD} = 20 V, I_D = 40 A R_G = 50 , V_{GS} = 10 V
Q_g	Total Gate Charge		130		nC	V_{DD} = 20 V, I_D = 40 A, V_{GS} = 10 V
Electrical Characteristics - Switching Off						
$T_{r(Voff)}$	Off Voltage Rise Time		360		nS	V_{DD} = 35 V, I_D = 75 A
t_f	Fall Time		280		nS	R_G = 50 , V_{GS} = 10 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 A, V_{GS} = 0
t_{rr}	Reverse Recovery Time		120		nS	I_{SD} = 75 A, di/dt = 100 A/µs V_R = 20 V
Q_{rr}	Reverse Recovery Charge		0.45		µC	
I_{RRM}	Reverse Recovery Current		6.5		A	

*Pulsed: Pulse Duration 300µS, Duty Cycle 1.5%.

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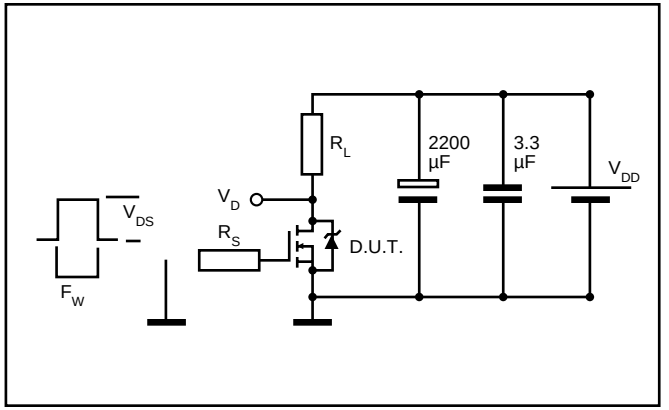
OM75N05SA (T_C = 25°C unless otherwise specified)

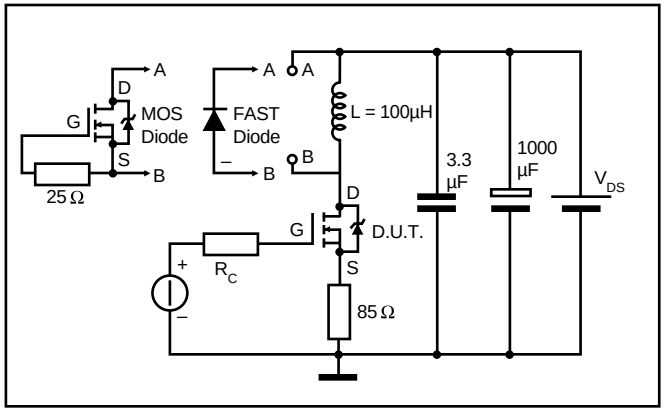
Avalanche Characteristics		Min.	Typ.	Max.	Units	Test Conditions
I_{AR}	Avalanche Current			70	A	(repetitive or non-repetitive,T_J = 25°C)
E_{AS}	Single Pulse Avalanche Energy			900	mJ	(starting T_J = 25°C, $I_D = I_{AR}$, V_{DD} = 25 V)
E_{AR}	Repetitive Avalanche Energy			200	mJ	(pulse width limited by $T_{j\,max}$, d < 1%)
I_{AR}	Avalanche Current			40	A	(repetitive or non-repetitive, T_J = 100°C)
Electrical Charactreristics - OFF						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	50			V	I_D = 250 µA, V_{GS} = 0
I_{DSS}	Zero Gate Voltage Drain Current (V_{GS} = 0)			250 1000	µA µA	V_{DS} = Max. Rat. V_{DS} = Max. Rat. x 0.8, T_C = 125°C
I_{GSS}	Gate-Body Leakage Current (V_{DS} = 0)			±100	nA	V_{GS} = ±20 V
Electrical Charactreristics - ON						
$V_{GS(th)}$	Gate Threshold Voltage	2		4	V	$V_{DS} = V_{GS}$, I_D = 250 µA
$R_{DS(on)}$	Static Drain-Source On Resistance			0.018 0.036		V_{GS} = 10 V, I_D = 40 A T_C = 100°C
$I_{D(on)}$	On State Drain Current	75			A	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, V_{GS} = 10 V
Electrical Charactreristics - Dynamic						
g_{fs}	Forward Transconductance	25			S	$V_{DS} > I_{D(on)} \times R_{DS(on)max}$, I_D= 40 A
C_{ies}	Input Capacitance		4100		pF	V_{DS} = 25 V
C_{oes}	Output Capacitance		1800		pF	V_{GS} = 0
C_{res}	Reverse Transfer Capacitance		420		pF	f = 1 mHz
Electrical Charactreristics - Switching On						
$T_{d(on)}$	Turn-On Time		190		nS	V_{DD} = 20 V, I_D = 40 A
t_r	Rise Time		900		nS	R_G = 50 , V_{GS} = 10 V
$(di/dt)_{on}$	Turn-On Current Slope		150		A/µS	V_{DD} = 20 V, I_D = 40 A R_G = 50 , V_{GS} = 10 V
Q_g	Total Gate Charge		130		nC	V_{DD} = 20 V, I_D = 40 A, V_{GS} = 10 V
Electrical Charactreristics - Switching Off						
$T_{r(Voff)}$	Off Voltage Rise Time		360		nS	V_{DD} = 35 V, I_D = 75 A
t_f	Fall Time		280		nS	R_G = 50 , V_{GS} = 10 V
t_{cross}	Cross-Over Time		600		nS	
Electrical Charactreristics - 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 A, V_{GS} = 0
t_{rr}	Reverse Recovery Time		120		nS	I_{SD} = 75 A, di/dt = 100 A/µs V_R = 20 V
Q_{rr}	Reverse Recovery Charge		0.45		µC	
I_{RRM}	Reverse Recovery Current		6.5		A	

*Pulsed: Pulse Duration 300µS, Duty Cycle 1.5%.

SWITCHING TIMES TEST CIRCUITS FOR RESISTIVE LOAD

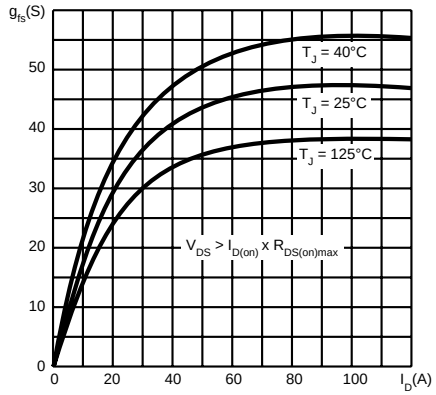


TEST CIRCUIT FOR INDUCTIVE LOAD SWITCHING AND DIODE REVERSE RECOVERY TIME

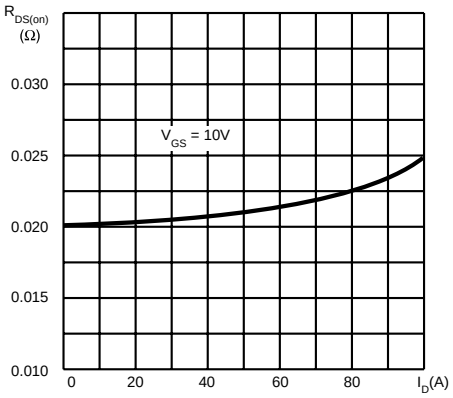


OM75N06SC, OM75N06SA, OM75N05SC, OM75N05SA

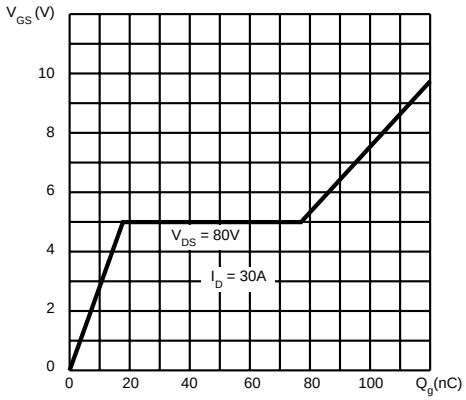
Transconductance



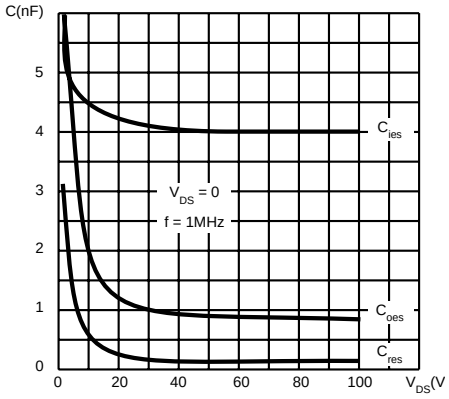
Static Drain-Source On Resistance



Gate Charge vs Gate-Source Voltage

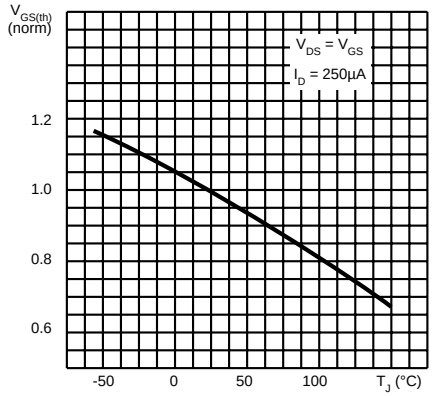


Capacitance Variations

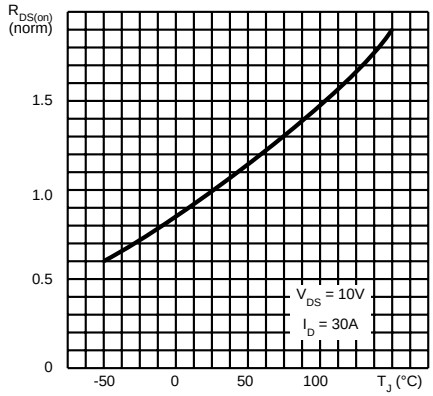


3.1

Normalized Gate Threshold Voltage vs Temperature



Normalized On Resistance vs Temperature



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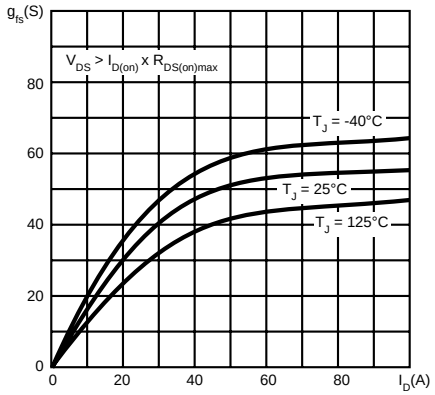
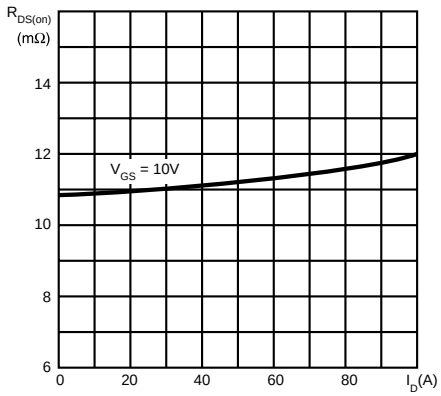
OM75N06SC, OM75N06SA, OM75N05SC, OM75N05SA

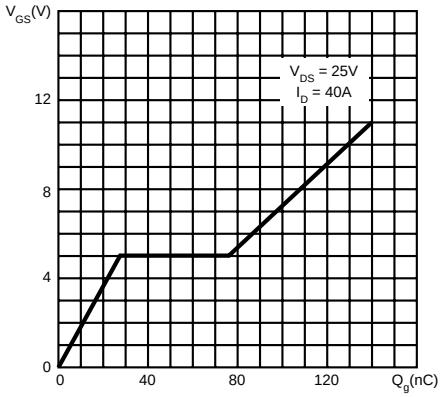
Transconductance



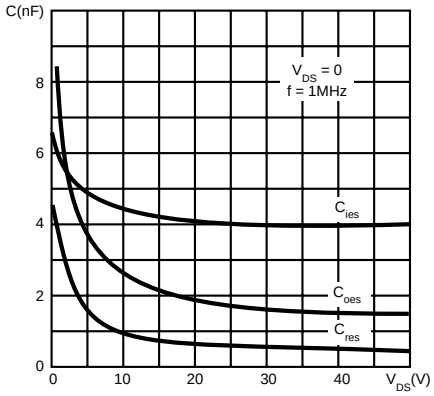
Static Drain-Source On Resistance



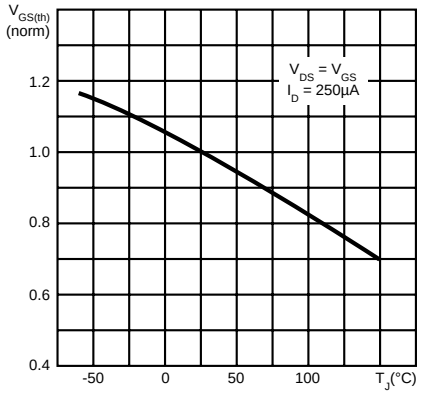
Gate Charge vs Gate-Source Voltage



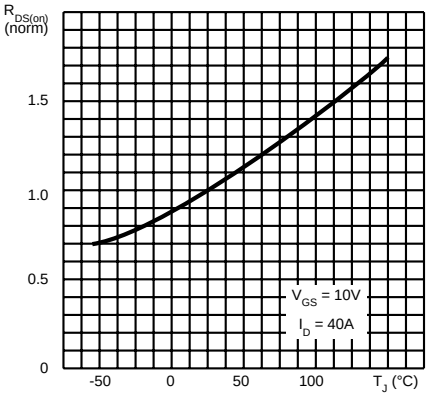
Capacitance Variations



Normalized Gate Threshold Voltage vs Temperature



Normalized On Resistance vs Temperature



3.1