UNIKC Semiconductor

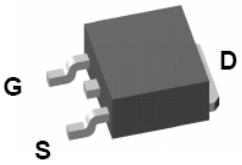
RoHS Compliant

P75N02LDG

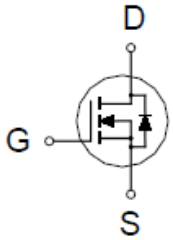
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
25V	5mΩ @V_{GS} = 10V	75A



TO-252



ABSOLUTE MAXIMUM RATINGS (T_C = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C = 25 °C	I_D	75	A
	T_C = 100 °C		50	
Pulsed Drain Current[1]		I_{DM}	170	
Avalanche Current		I_{AS}	45	
Avalanche Energy	L = 0.1mH	E_{AS}	100	mJ
Power Dissipation	T_C = 25 °C	P_D	54	W
	T_C = 100 °C		32.75	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C
Lead Temperature ($^1/_{16}$" from case for 10 sec.)		T_L	275	

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		2.3	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	
Case-to-Heatsink	$R_{\theta CS}$	0.6		

[1]Pulse width limited by maximum junction temperature.

UNIKC Semiconductor

RoHS Compliant

P75N02LDG

N-Channel Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS (T_C = 25 °C Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	25			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.5	3	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±250	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V			25	μA
		V_{DS} = 20V, V_{GS} = 0V , T_J = 125 °C			250	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 10V, V_{GS} = 10V	75			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 30A		5	7	mΩ
		V_{GS} = 4.5V, I_D = 24A		6.6	10	
Forward Transconductance[1]	g_{fs}	V_{DS} = 15V, I_D = 30A		55		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 15V, f = 1MHz		1840		pF
Output Capacitance	C_{oss}			712		
Reverse Transfer Capacitance	C_{rss}			559		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 15mV,f=1MHz		1.25		Ω
Total Gate Charge[2]	$Q_{g\ (10V)}$	V_{DD} = 15V, I_D = 25A		55		nC
	$Q_{g(4.5V)}$			30		
Gate-Source Charge[2]	$Q_{gs(10V)}$			9.5		
	$Q_{gs(4.5V)}$			8.8		
Gate-Drain Charge[2]	$Q_{gd(10V)}$			19.5		
	$Q_{gd(4.5V)}$			19		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 15V, $I_D \cong$ 30A, V_{GS} = 10V, R_G= 2.5Ω		11.5		nS
Rise Time[2]	t_r			17		
Turn-Off Delay Time[2]	$t_{d(off)}$			32		
Fall Time[2]	t_f			7.5		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)						
Continuous Current	I_S				40	A
Forward Voltage[1]	V_{SD}	I_F = I_S, V_{GS} = 0V			1.3	V
Reverse Recovery Time	t_{rr}	I_F = I_S, dI_F/dt = 100A / μS		37		nS
Peak Reverse Recovery Current	$I_{RM(REC)}$			200		A
Reverse Recovery Charge	Q_{rr}			0.043		μC

[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

[2]Independent of operating temperature.

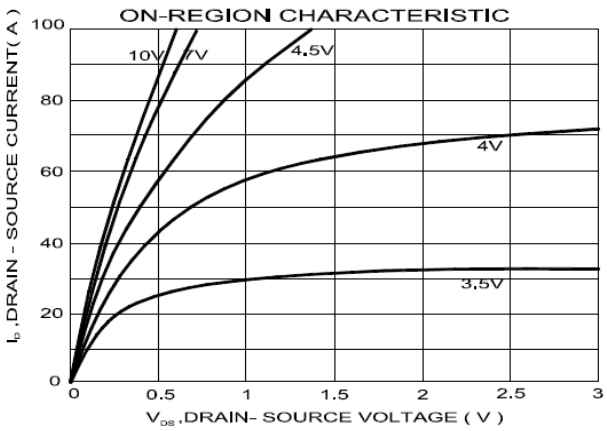
UNIKC Semiconductor

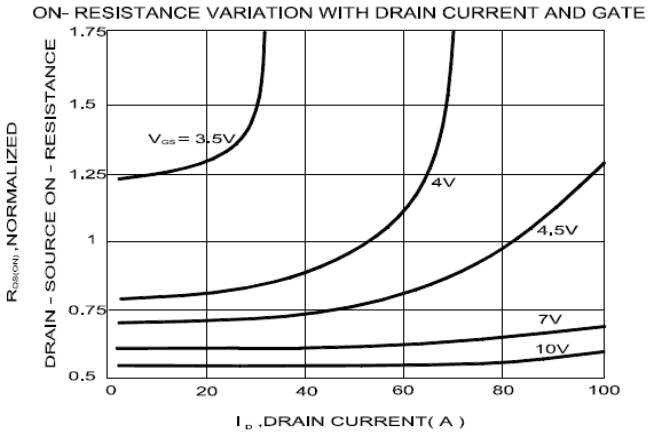
RoHS Compliant

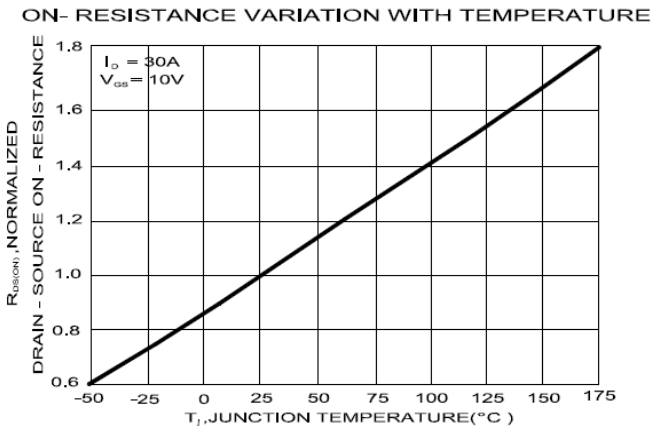
P75N02LDG

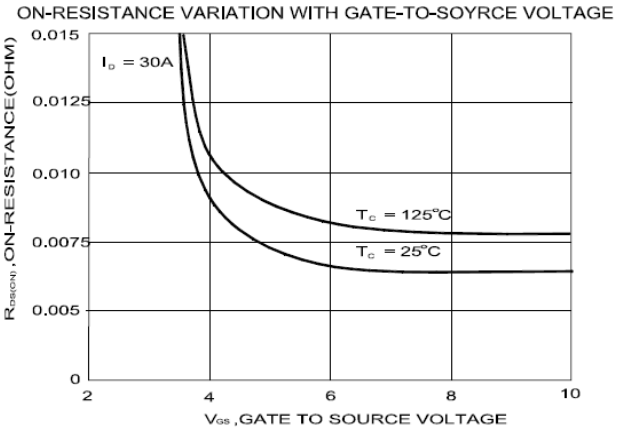
N-Channel Enhancement Mode MOSFET

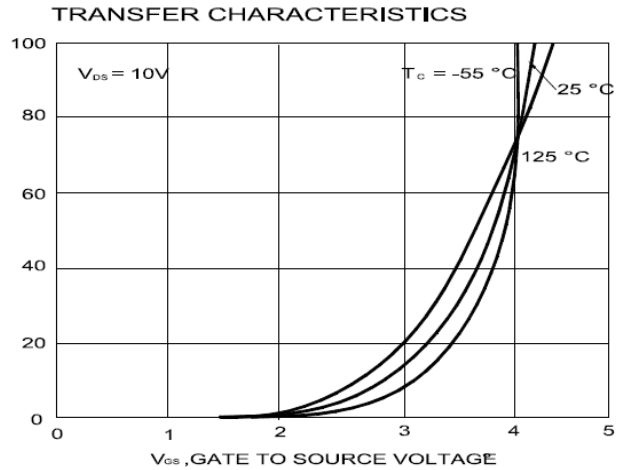
TYPICAL CHARACTERISTICS

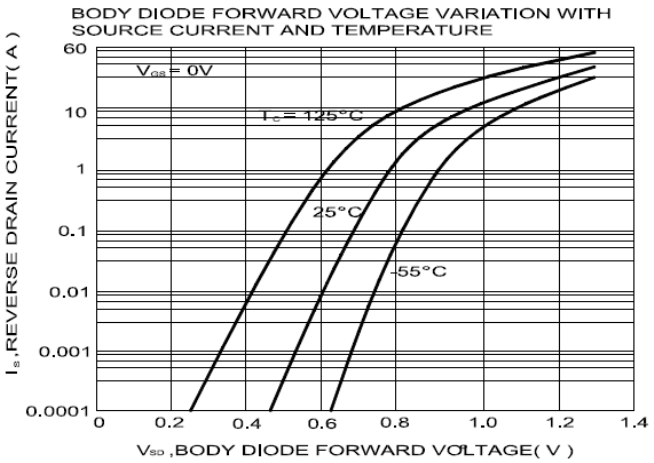










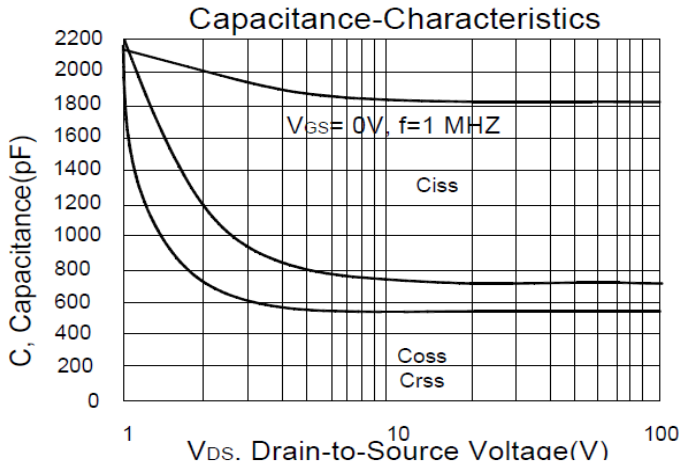


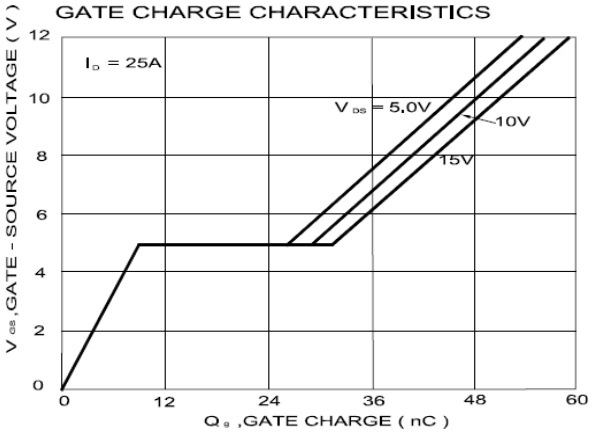
UNIKC Semiconductor

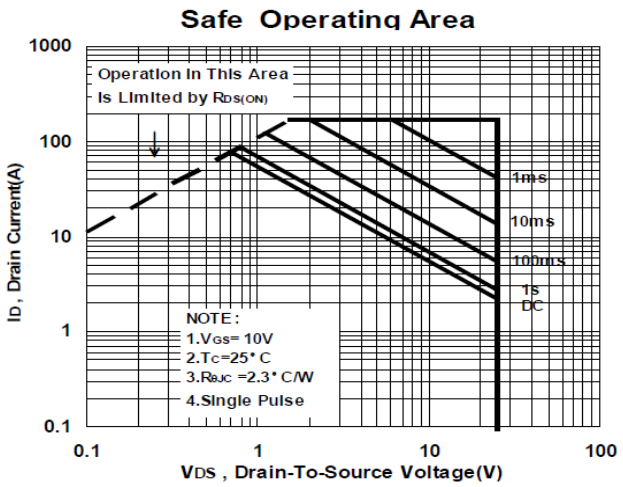
RoHS Compliant

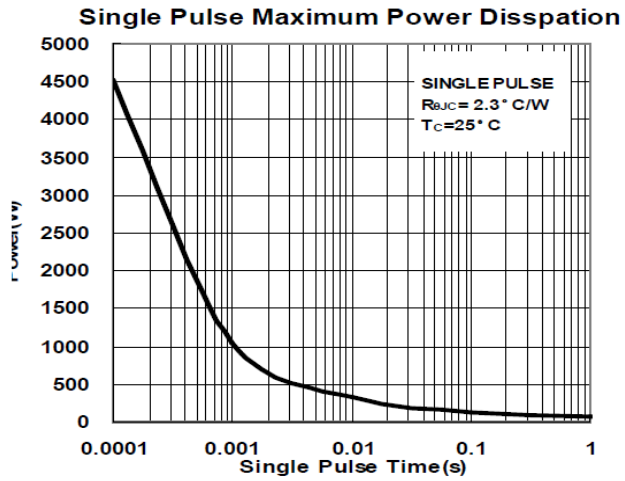
P75N02LDG

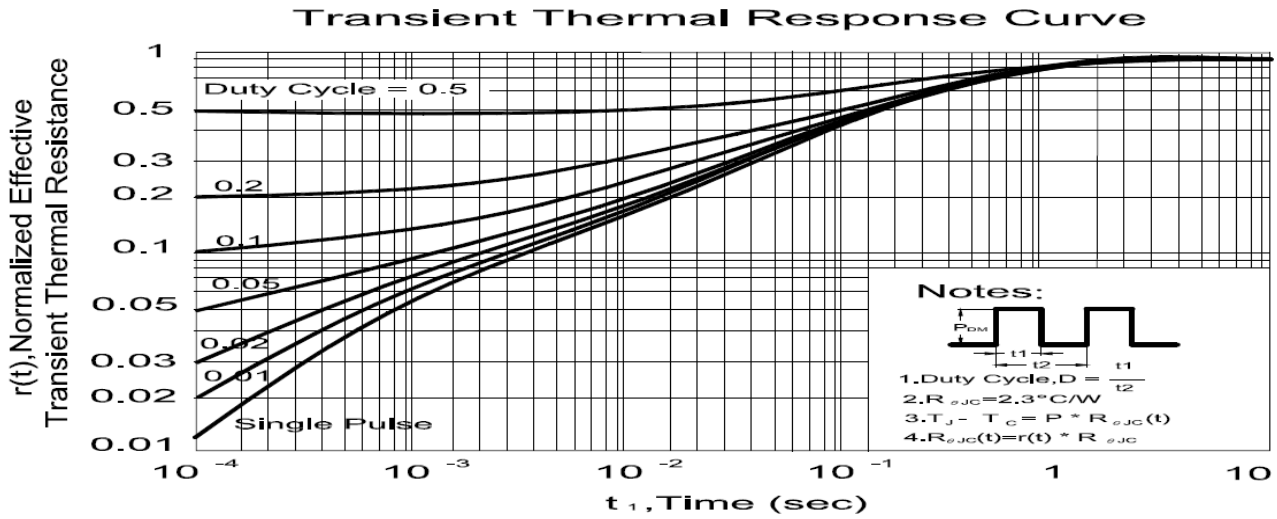
N-Channel Enhancement Mode MOSFET











UNIKC Semiconductor

RoHS Compliant

P75N02LDG

N-Channel Enhancement Mode MOSFET

Package Dimension

TO-252 (DPAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	8.9	10	10.41	J	4.8		5.64
B	2.1	2.2	2.5	K	0.15		1.49
C	0.4	0.5	0.61	L	0.4	0.76	0.91
D	0.82	1.2	1.5	M	4.2	4.58	5
E	0.35	0.5	0.65	S	4.57	5.1	5.52
F	0		0.2	T	3.81	4.75	5.24
G	5.3	6.1	6.3	U	1.4		1.78
H	0.5		1.7	V	0.55	1.25	1.7
I	6.3	6.5	6.8