UNIKC Semiconductor

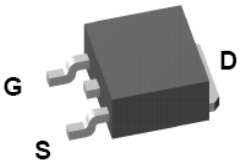
RoHS Compliant

P0550BD

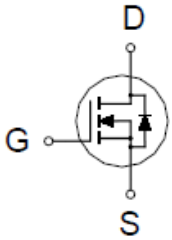
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
500V	1.75Ω @V_{GS} = 10V	4.5A



TO-252



100% UIS tested

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	500	V
Gate-Source Voltage		V_{GS}	±30	
Continuous Drain Current[2]	T_C = 25 °C	I_D	4.5	A
	T_C = 100 °C		3	
Pulsed Drain Current[1, 2]		I_{DM}	15	
Avalanche Energy[3]		E_{AS}	31	mJ
Power Dissipation	T_C = 25 °C	P_D	52	W
	T_C = 100 °C		20	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		2.4	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	

[1]Pulse width limited by maximum junction temperature.

[2]Limited only by maximum temperature allowed.

[3]V_{DD} = 50V, L = 10mH, starting T_J = 25°C.

UNIKC Semiconductor

RoHS Compliant

P0550BD

N-Channel Enhancement Mode MOSFET

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	500			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2.5		4.5	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±30V			±100	nA
Gate Voltage Drain Current	I_{DSS}	V_{DS} = 500V, V_{GS} = 0V , T_C = 25 °C			25	μA
		V_{DS} = 400V, V_{GS} = 0V , T_C = 100 °C			250	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 2.25A			1.75	Ω
Forward Transconductance[1]	g_{fs}	V_{DS} = 10V, I_D = 2.25A		4		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		691		pF
Output Capacitance	C_{oss}			93		
Reverse Transfer Capacitance	C_{rss}			12		
Total Gate Charge[2]	Q_g	V_{DD} = 400V, I_D = 4.5A, V_{GS} = 10V		12.1		nC
Gate-Source Charge[2]	Q_{gs}			3.7		
Gate-Drain Charge[2]	Q_{gd}			3.6		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = 250V, I_D = 4.5A, R_G = 25Ω		13		nS
Rise Time[2]	t_r			22		
Turn-Off Delay Time[2]	$t_{d(off)}$			28		
Fall Time[2]	t_f			20		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current[3]	I_S				4.5	A
Forward Voltage[1]	V_{SD}	I_F = 4.5A, V_{GS} = 0V			1.5	V
Reverse Recovery Time	t_{rr}	I_F = 4.5A, dI_F/dt = 100A / μs		1450		nS
Reverse Recovery Charge	Q_{rr}			10		uC

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

[2]Independent of operating temperature.

[3]Limited only by maximum temperature allowed.

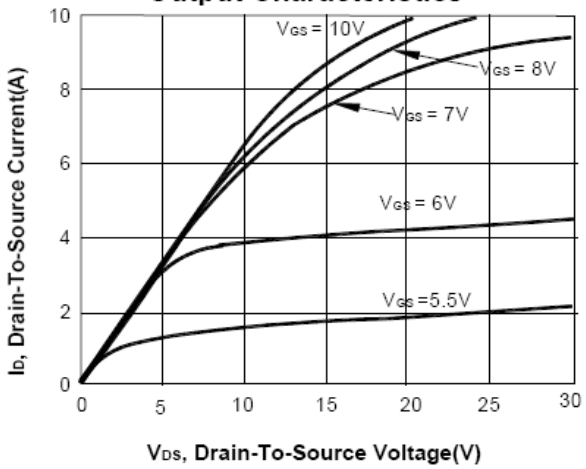
UNIKC Semiconductor

RoHS Compliant

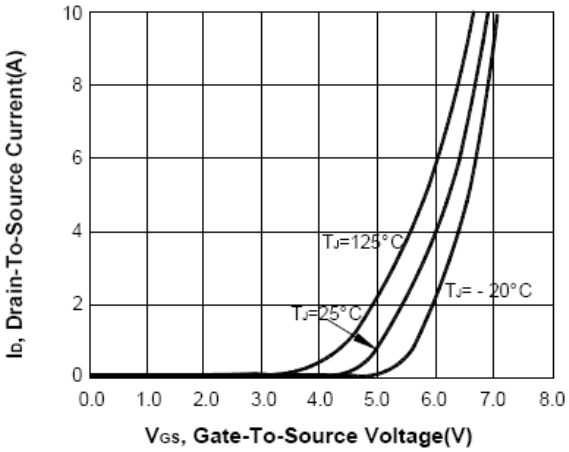
P0550BD

N-Channel Enhancement Mode MOSFET

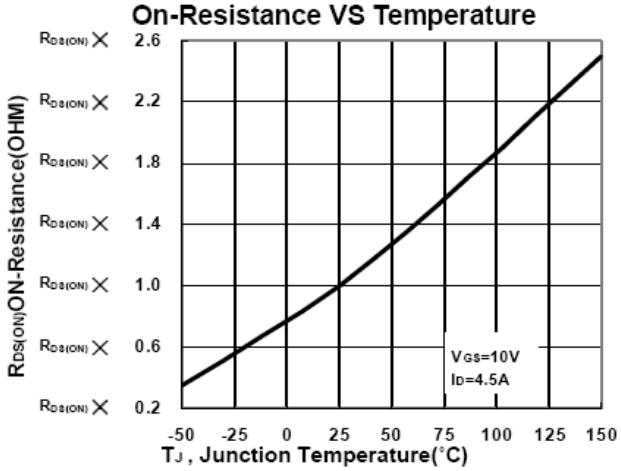
Output Characteristics



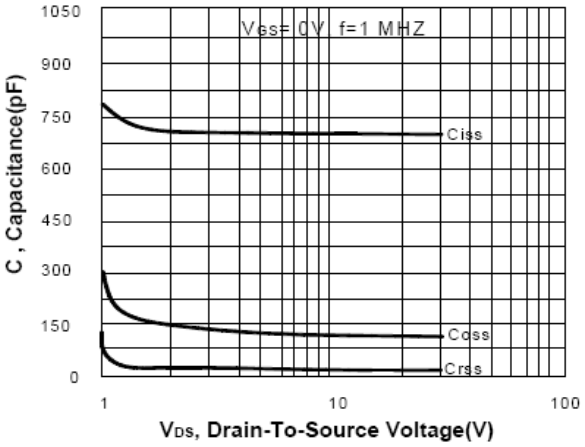
Transfer Characteristics



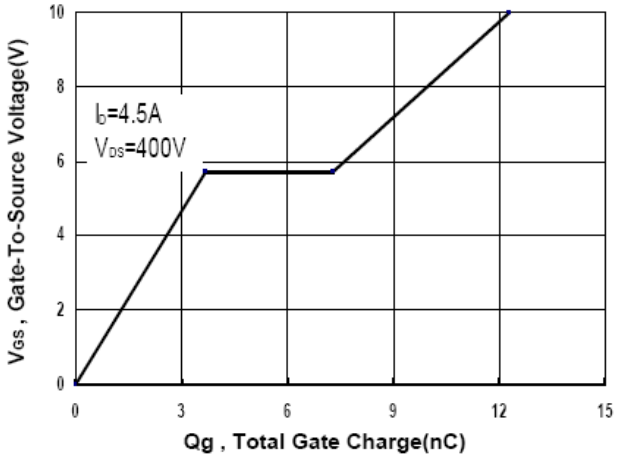
On-Resistance VS Temperature



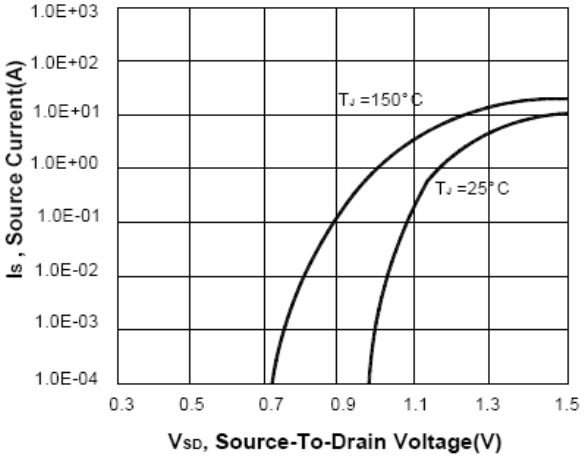
Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage



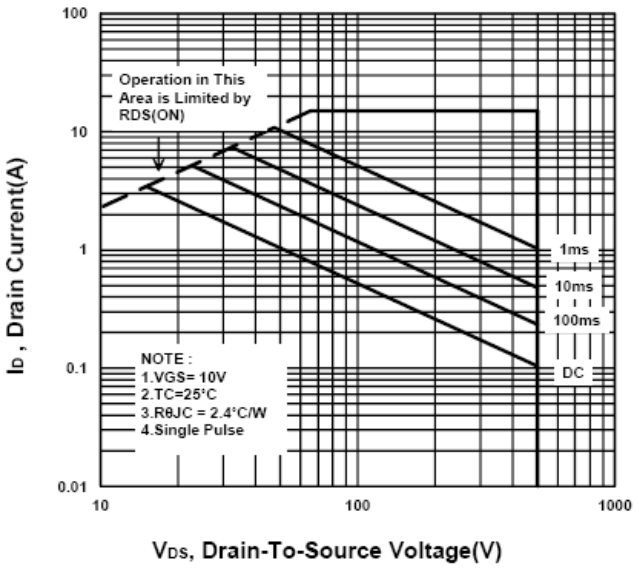
UNIKC Semiconductor

RoHS Compliant

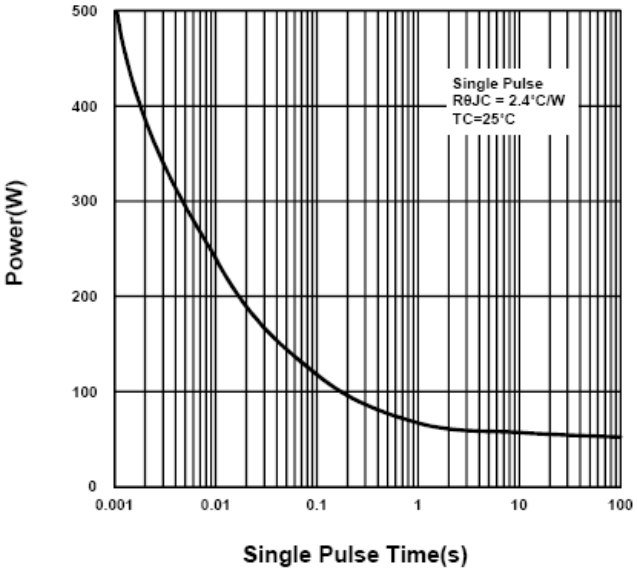
P0550BD

N-Channel Enhancement Mode MOSFET

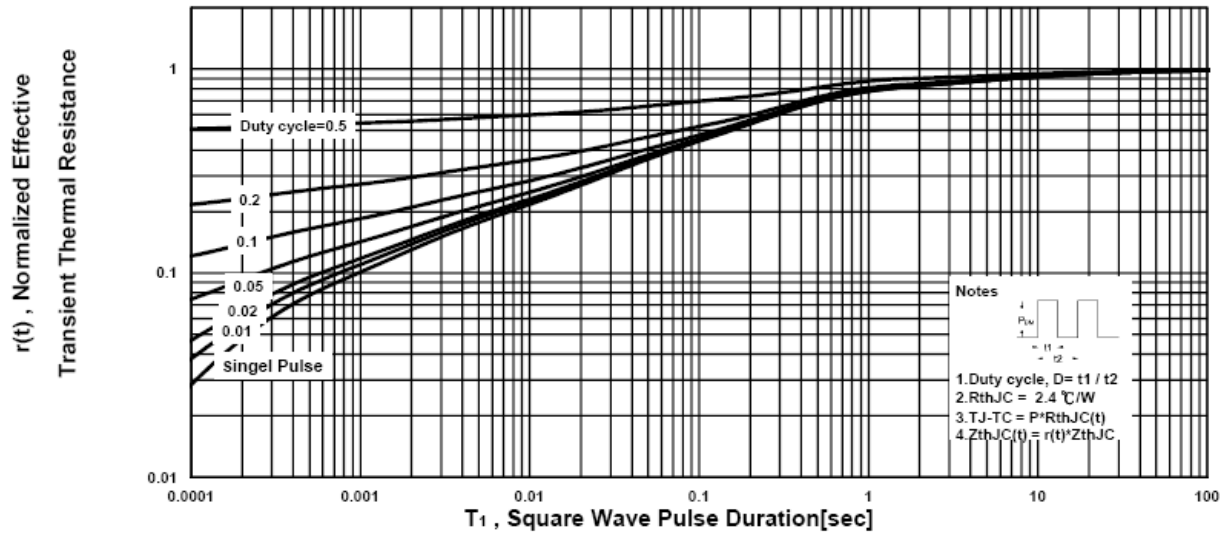
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



UNIKC Semiconductor

RoHS Compliant

P0550BD

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