UNIKC Semiconductor

RoHS Compliant

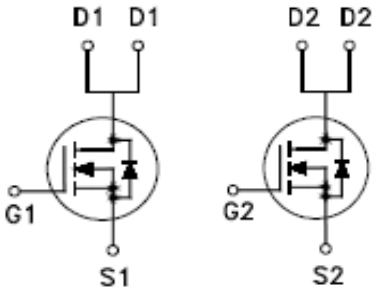
P2503HEA

Dual N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	20mΩ @V_{GS} = 10V	8A

PDFN 3x3P



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_A = 25 °C	I_D	8	A
	T_A = 70 °C		6	
Pulsed Drain Current[1]		I_{DM}	60	
Avalanche Current		I_{AS}	17	
Avalanche Energy	L = 0.1mH	E_{AS}	14	mJ
Power Dissipation	T_A = 25 °C	P_D	2.2	W
	T_A = 70 °C		1.4	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient[2]	$R_{\theta JA}$		56	°C / W

[1]Pulse width limited by maximum junction temperature.

[2]The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz.Copper, in a still air environment with T_A=25°C.

UNIKC Semiconductor

RoHS Compliant

P2503HEA

Dual N-Channel Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.5	2.5	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V			1	μA
		V_{DS} = 20V, V_{GS} = 0V , T_J = 55 °C			10	μA
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 5V, V_{GS} = 10V	60			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 6A		25	30	mΩ
		V_{GS} = 10V, I_D = 8A		17	20	mΩ
Forward Transconductance[1]	g_{fs}	V_{DS} = 10V, I_D = 8A		21		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 15V, f = 1MHz		588		pF
Output Capacitance	C_{oss}			77		pF
Reverse Transfer Capacitance	C_{rss}			67		pF
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		3.7		Ω
Total Gate Charge[2]	Q_g(V_{GS}=10V)	V_{DS} = 0.5$V_{(BR)DSS}$, I_D = 8A		12.7		nC
	Q_g(V_{GS}=4.5V)			6.6		nC
Gate-Source Charge[2]	Q_{gs}			3.3		nC
Gate-Drain Charge[2]	Q_{gd}			2.4		nC
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = 15V, I_D ≅ 8A, V_{GEN} = 10V, R_G = 6Ω		12		nS
Rise Time[2]	t_r			10		nS
Turn-Off Delay Time[2]	$t_{d(off)}$			27		nS
Fall Time[2]	t_f			10		nS

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				8	A
Forward Voltage[1]	V_{SD}	I_F = 8A, V_{GS} = 0V			1.4	V
Reverse Recovery Time	t_{rr}	I_F = 8A, dI_F/dt = 100A / μS		12.5		nS
Reverse Recovery Charge	Q_{rr}			3.2		nC

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

[2]Independent of operating temperature.

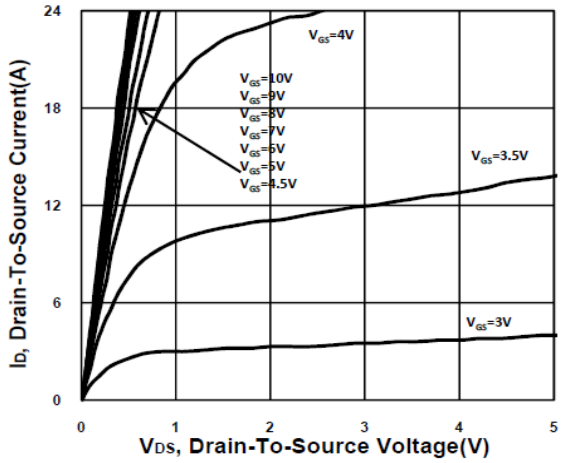
UNIKC Semiconductor

RoHS Compliant

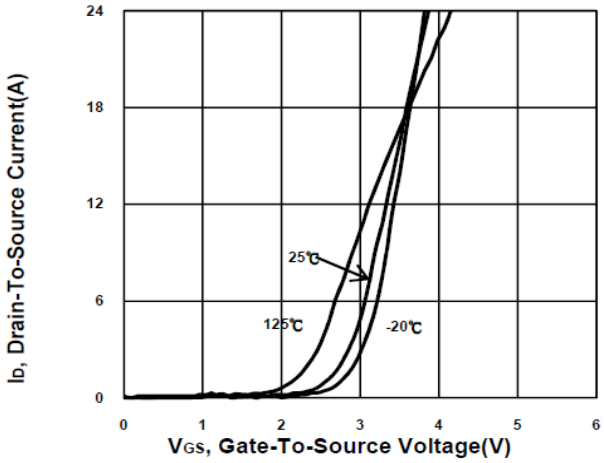
P2503HEA

Dual N-Channel Enhancement Mode MOSFET

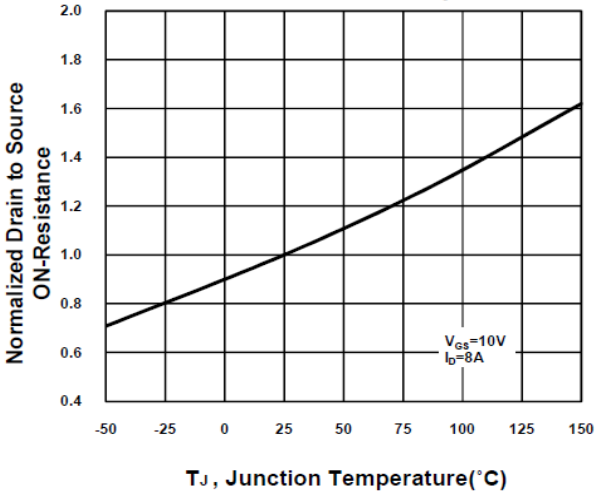
Output Characteristics



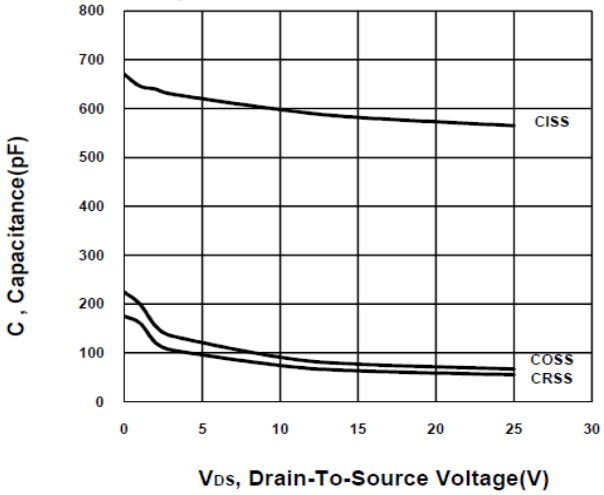
Transfer Characteristics



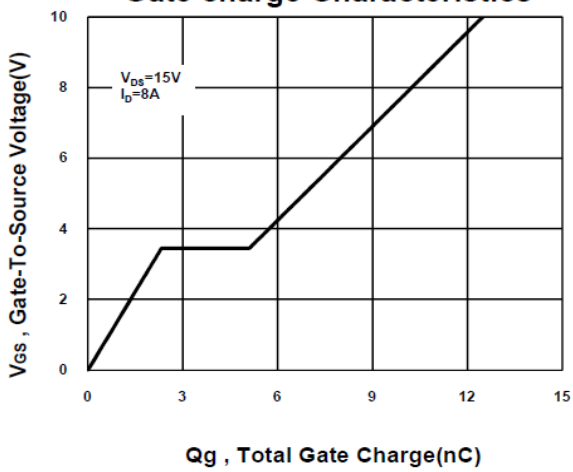
On-Resistance VS Temperature



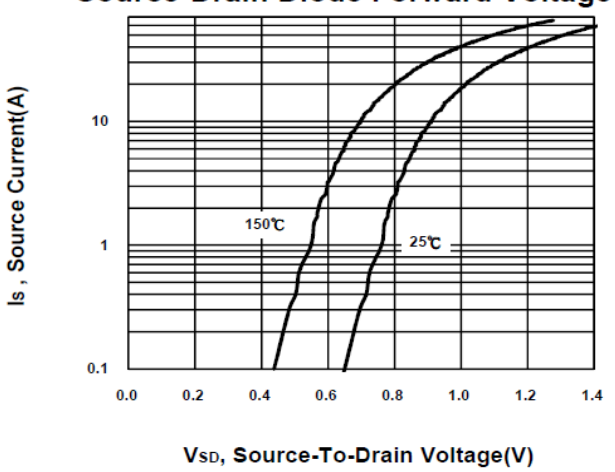
Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage



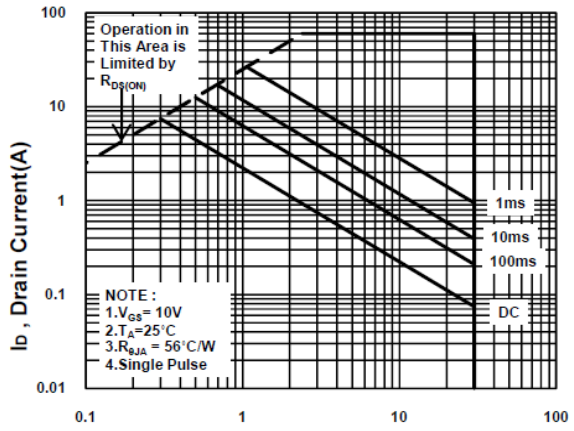
UNIKC Semiconductor

RoHS Compliant

P2503HEA

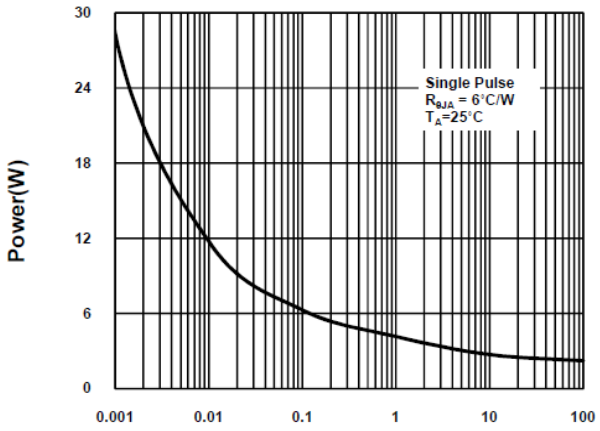
Dual N-Channel Enhancement Mode MOSFET

Safe Operating Area



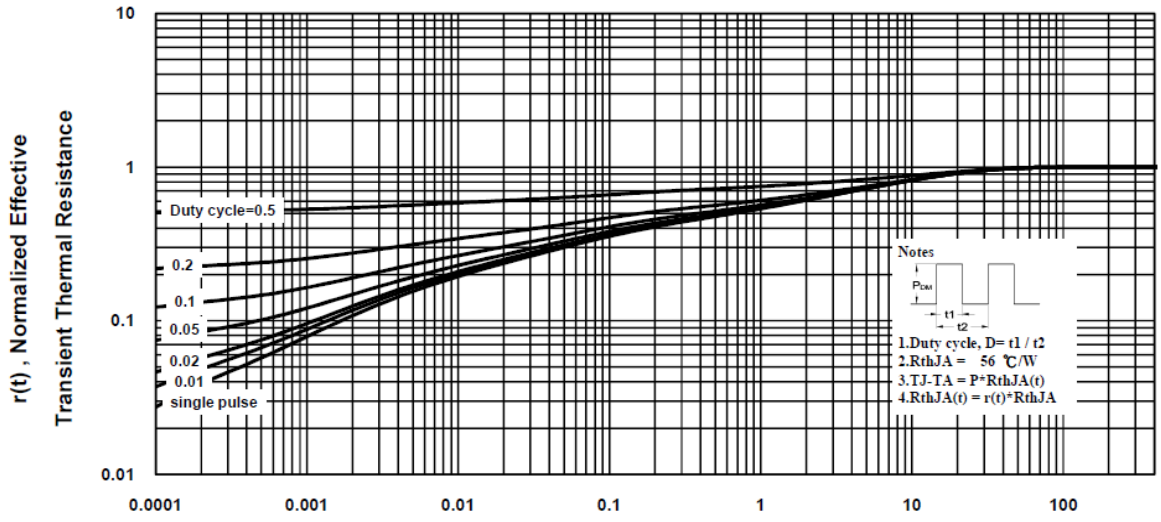
V_{DS}, Drain-To-Source Voltage(V)

Single Pulse Maximum Power Dissipation



Single Pulse Time(s)

Transient Thermal Response Curve



T_1 , Square Wave Pulse Duration[sec]

UNIKC Semiconductor

RoHS Compliant

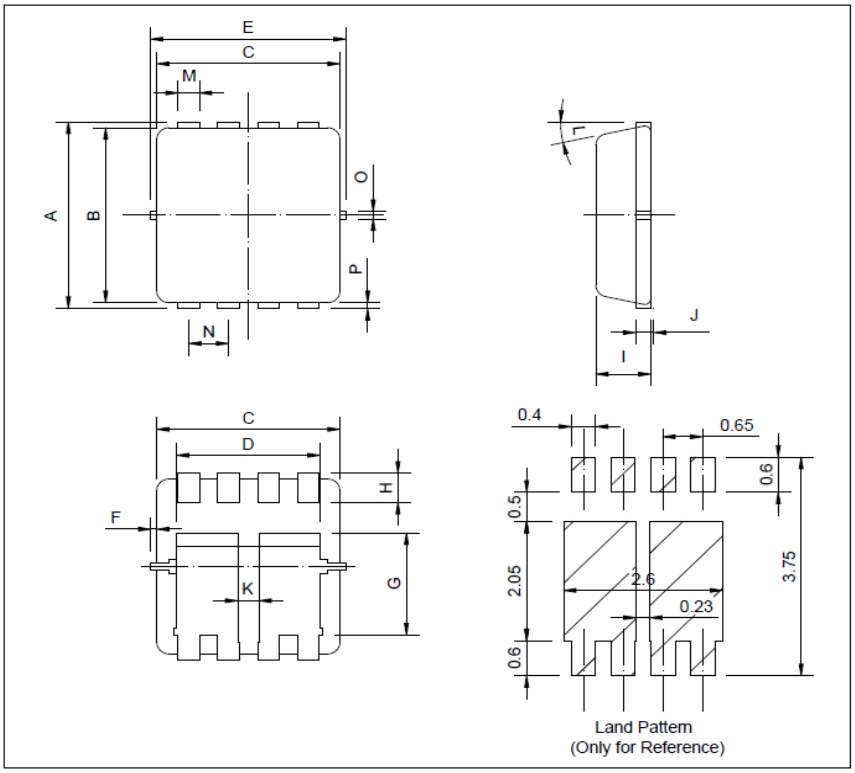
P2503HEA

Dual N-Channel Enhancement Mode MOSFET

Package Dimension

PDFN 3x3P(Dual) MECHANICAL DATA

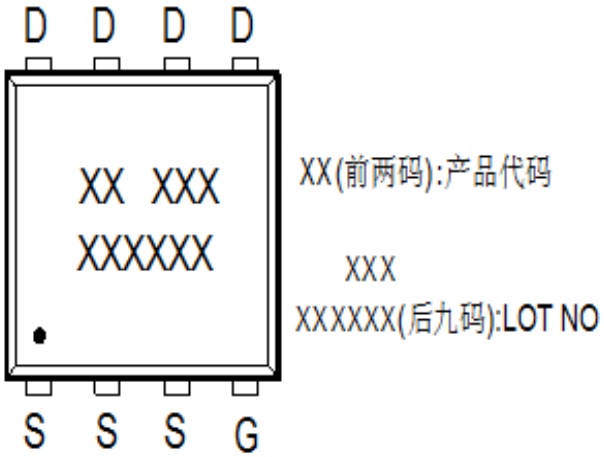
Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	3.2	3.3	3.4	I	0.7	0.75	0.8
B	2.95	3.05	3.15	J	0.1	0.15	0.25
C	2.95	3.05	3.15	K	0.35		
D		2.29		L	0°	10°	12°
E	3.2	3.3	3.4	M	0.27	0.32	0.37
F		0.13		N		0.65	
G	1.7	1.83	1.96	O		0.2	
H	0.3	0.4	0.5	P	0.06	0.13	0.2



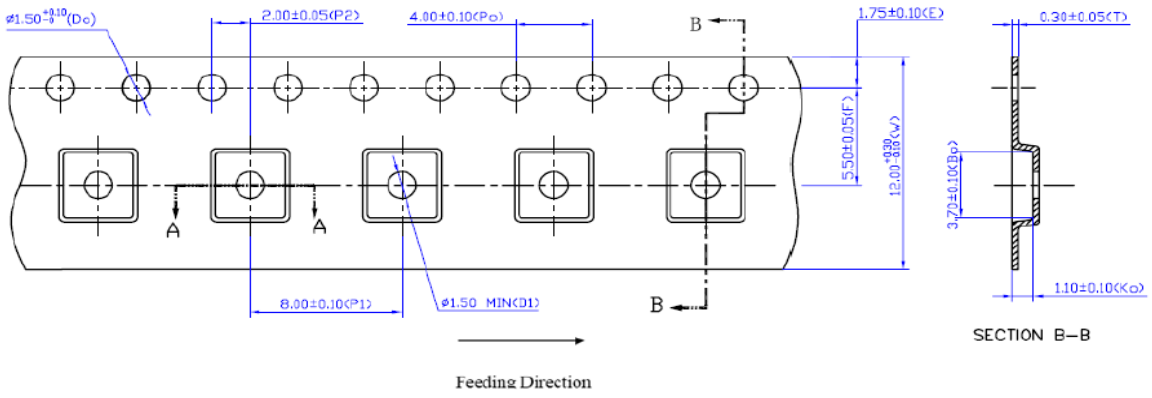
P2503HEA

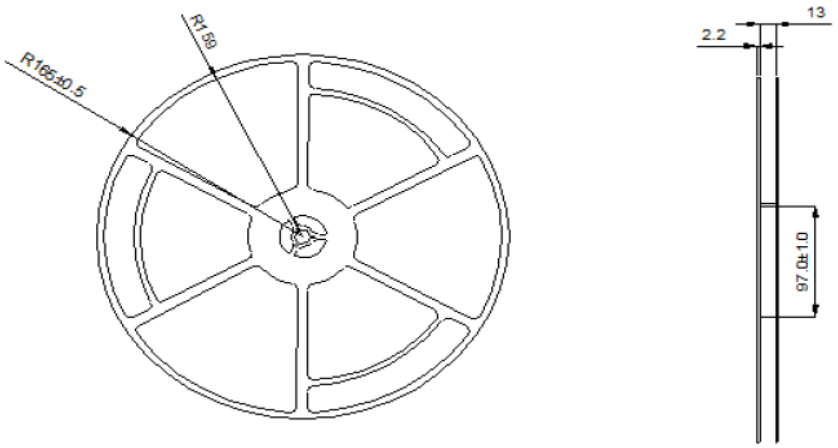
Dual N-Channel Enhancement Mode MOSFET

A. Marking Information(此产品代码为：C1)



B. Tape&Reel Information:5000pcs/Reel





P2503HEA

Dual N-Channel Enhancement Mode MOSFET

C. Lot.No. & Date Code rule

1.LOT.NO.

M N 15M21 03

- #8~9 Sub-lot No
- Order series no.
- Foundry site
- Assembly site

2.Date Code

D Y M X XXX

- Order series no. & Sub-lot No
- Week
- M : Month (A:Jan , B:Feb , C:Mar ,D :Apr ,E:May ,F:Jun,G:Jul,H:Aug,I:Sep,J:Oct,K:Nov,L:Dec.)
- Y : Year (N : 2011, O : 2012 ...)
- Assembly site

3.Date Code (for Small package)

XX Y WW

- Week
- Y : Year (9: 2009,A : 2010, B : 2011 ...)
- Device Name

UNIKC Semiconductor

RoHS Compliant

P2503HEA

Dual N-Channel Enhancement Mode MOSFET

D.Label rule

标签内容(Label content)

1	Label Size	30 * 90 mm
2	Font style	Times New Roman or Arial (或可区分英文”0”和数字”0”，”G和”Q”的字型即可)
3	Great Power	Height: 4 mm
4	Package	Height: 2 mm
5	Date	Height: 2 mm Shipping date: YYYY/MM/DD, ex. 2008/09/12
6	Device	Height: 3 mm (Max: 16 Digit)
7	Lot	Height: 3 mm (Max: 9 Digit) Sub lot
8	D/C	Height: 3 mm (Max: 7 Digit)
9	QTY	Height: 3 mm (Max: 6 Digit) Thousand mark is no needed
10	Pb Free label	Pb Diameter: 1 cm bottom color: Green Font color: Black Font style: Arial
11	Halogen Free label	G Diameter: 1 cm bottom color: Green Font color: Black Font style: Arial
12	Scan info	Device / Lot / D/C / QTY , Insert “ / “ between every parts. for example: P3055LDG/G12345601/GGG2301/2000 DPI (Dots per inch): Over 300 dpi Code : Code 128 Height: 6 mm at least