UNIKC Semiconductor

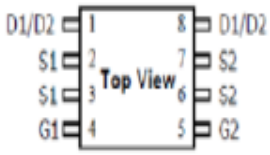
RoHS Compliant

P2502IZG

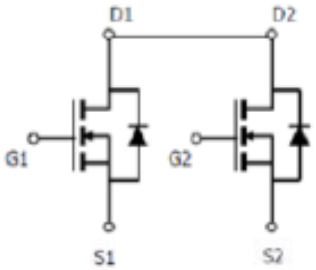
Dual N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
20V	22mΩ @V_{GS} = 4.5V	6.3A



G: GATE
D: DRAIN
S: SOURCE



TSSOP-8

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±8	V
Continuous Drain Current[2]	T_A= 25 °C	I_D	6.3	A
	T_A = 70 °C		5	
Pulsed Drain Current[1]		I_{DM}	50	
Avalanche Current		I_{AS}	22	
Avalanche Energy	L = 0.1mH	E_{AS}	23	mJ
Power Dissipation	T_A = 25 °C	P_D	1.4	W
	T_A= 70 °C		0.9	
Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient[3]	$R_{\theta JA}$		90	°C / W

[1]Pulse width limited by maximum junction temperature.

[2]Limited only by maximum temperature allowed.

[3]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.

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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	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.5	0.7	1	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±8V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 16V, V_{GS} = 0V			1	μA
		V_{DS} = 10V, V_{GS} = 0V, T_J = 70 °C			10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} =1.8V, I_D = 4A		24	34	mΩ
		V_{GS} =2.5V, I_D = 5A		18	26	
		V_{GS} = 4.5V, I_D = 6A		15	22	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 6A		35		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} =10V, f = 1MHz		917		pF
Output Capacitance	C_{oss}			134		
Reverse Transfer Capacitance	C_{rss}			122		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		3		Ω
Total Gate Charge[2]	Q_g	V_{GS} = 4.5V , V_{DS} = 10V , I_D = 6A		12.7		nC
Gate-Source Charge[2]	Q_{gs}			1.5		
Gate-Drain Charge[2]	Q_{gd}			4.4		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 10V , I_D ≅ 6A, V_{GS} = 4.5V, R_{GEN} =6Ω		18		nS
Rise Time[2]	t_r			1.5		
Turn-Off Delay Time[2]	$t_{d(off)}$			4.7		
Fall Time[2]	t_f			49		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS(T_J = 25 °C)						
Continuous Current	I_S				6.3	A
Forward Voltage[1]	V_{SD}	I_F = 6A, V_{GS} = 0V			1	V
Reverse Recovery Time	t_{rr}	I_F = 6A, dI_F/dt = 100A / μS		13		nS
Reverse Recovery Charge	Q_{rr}			4		nC

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

[2]Independent of operating temperature.

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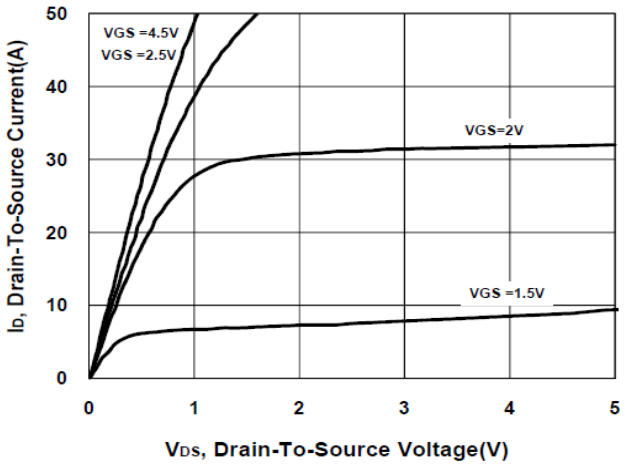
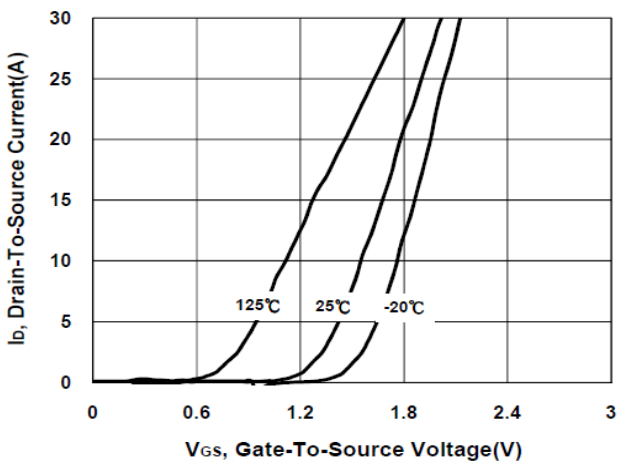
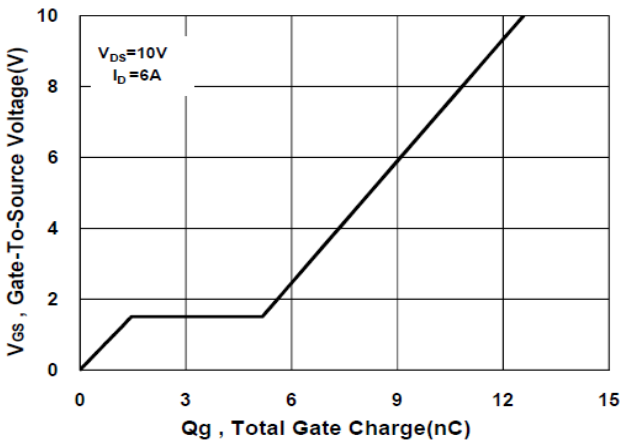
Output Characteristics



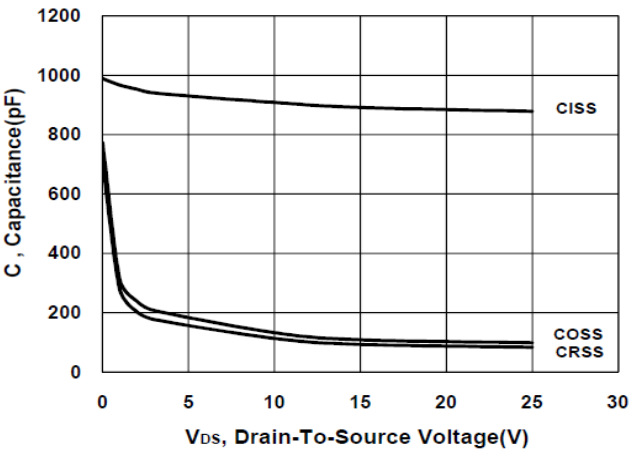
Transfer Characteristics



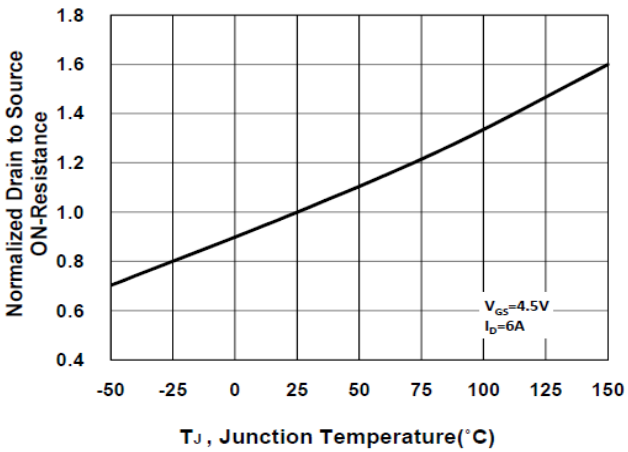
Gate charge Characteristics



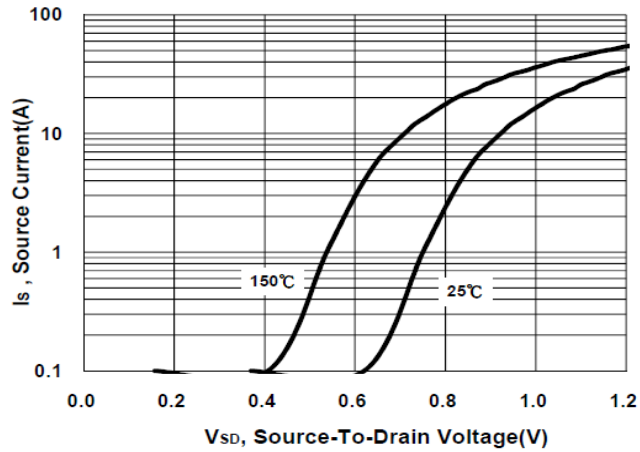
Capacitance Characteristic



On-Resistance VS Gate-To-Source



Source-Drain Diode Forward Voltage



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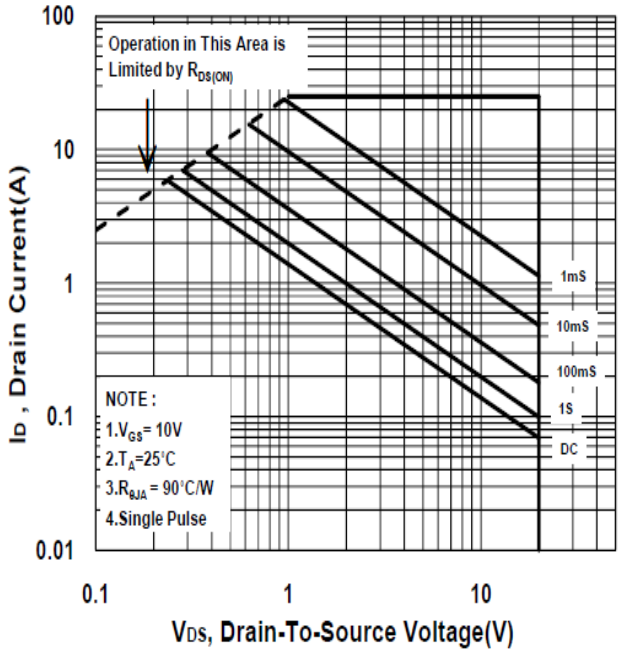
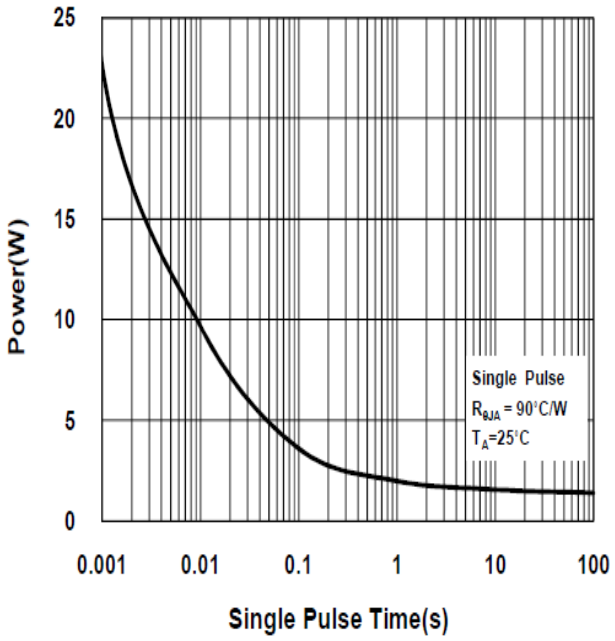
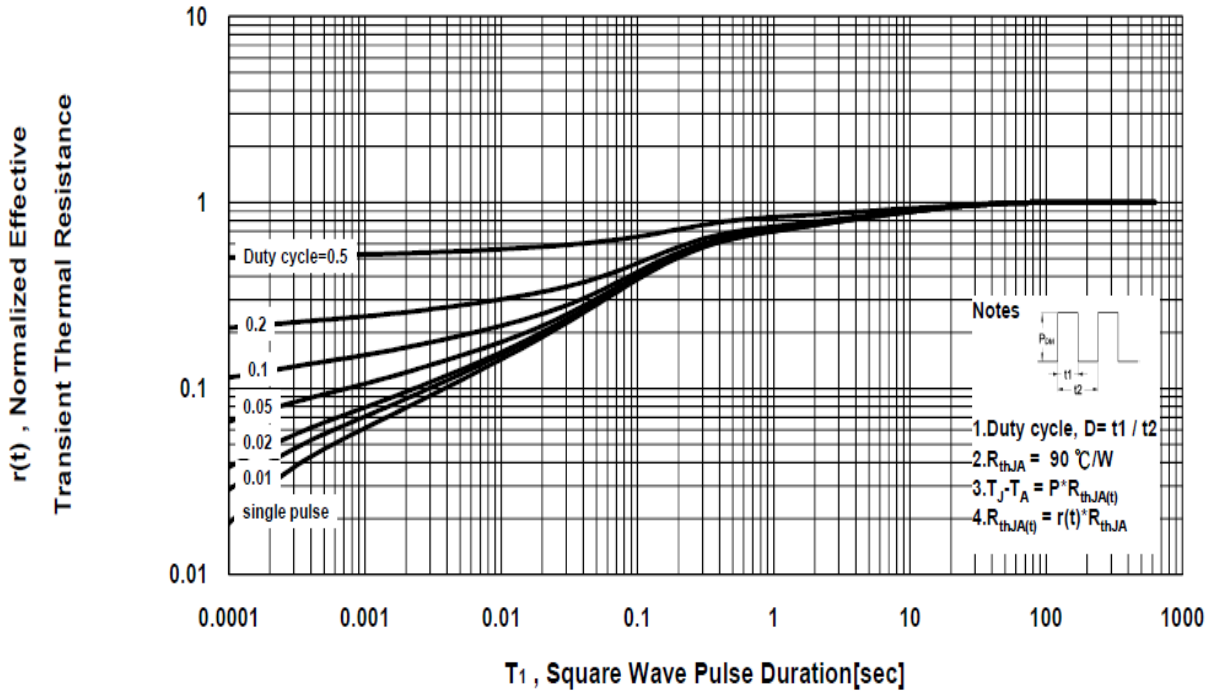
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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Package Dimension

TSSOP-8 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A			1.1	e		0.65	
A1	0.02		0.15	L	0.5		0.7
A2	0.8		1.0	H		0.25	
b	0.19		0.3	$\theta 1$	0°		7°
c	0.09		0.2	L1		1	
D	2.9		3.1	S	0.2		
E	6.25		6.55	$\theta 2$		12°	
E1	4.3		4.5