UNIKC Semiconductor

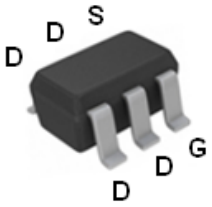
RoHS Compliant

P2703BAG

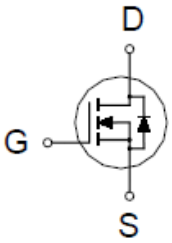
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	27mΩ @V_{GS} = 10V	7A



TSOP- 06



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1]	T_A = 25 °C	I_D	7	A
	T_A = 70 °C		4.5	
Pulsed Drain Current[2]		I_{DM}	35	
Avalanche Current		I_{AS}	17	
Avalanche Energy	L = 0.1mH	E_{AS}	15	mJ
Power Dissipation	T_A = 25 °C	P_D	2	W
	T_A = 70 °C		0.8	
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	$R_{\theta JC}$		30	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	

[1]Pulse width limited by maximum junction temperature.

[2]Limited by package

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ELECTRICAL CHARACTERISTICS (T_J = 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	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.5	3.0	
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 = 125 °C			10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 5V, V_{GS} = 10V	35			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 5A		29	40	mΩ
		V_{GS} = 10V, I_D = 7A		19	27	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 7A		12		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 15V, f = 1MHz		494		pF
Output Capacitance	C_{oss}			177		
Reverse Transfer Capacitance	C_{rss}			108		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		1.9		Ω
Total Gate Charge[2]	$Q_{g(VGS=10V)}$	V_{DS} = 15V, I_D = 7A		11.5		nC
	$Q_{g(VGS=4.5V)}$			5.2		
Gate-Source Charge[2]	Q_{gs}			1.1		
Gate-Drain Charge[2]	Q_{gd}			4.1		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 15V $I_D \cong$ 7A, V_{GS} = 10V, R_{GEN} = 6Ω		6.5		nS
Rise Time[2]	t_r			5		
Turn-Off Delay Time[2]	$t_{d(off)}$			23		
Fall Time[2]	t_f			5		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				2	A
Forward Voltage[1]	V_{SD}	I_F = 7A, V_{GS} = 0V			1	V
Reverse Recovery Time	t_{rr}	I_F = 7A, dI_F/dt = 100A / μS		31		nS
Reverse Recovery Charge	Q_{rr}	V_{GS} = 0V		12		μC

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

[2]Independent of operating temperature.

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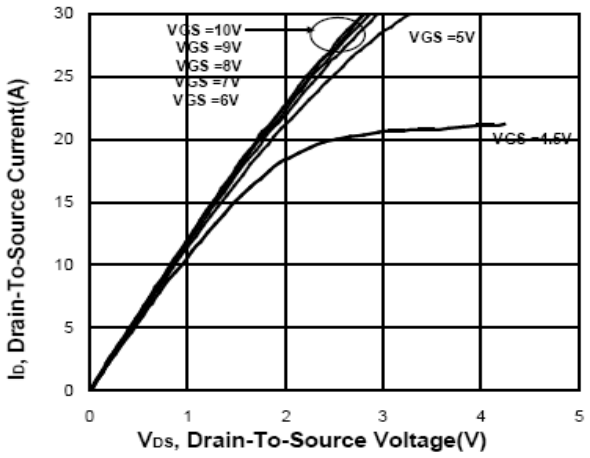
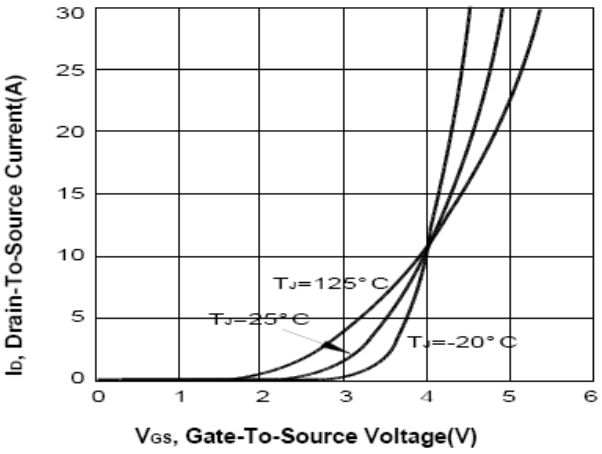
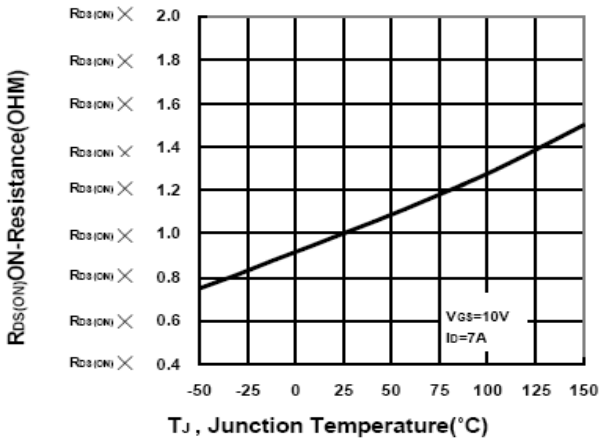
Output Characteristics



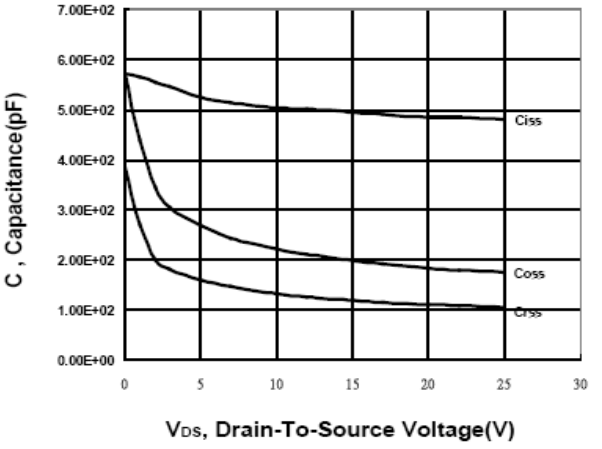
Transfer Characteristics



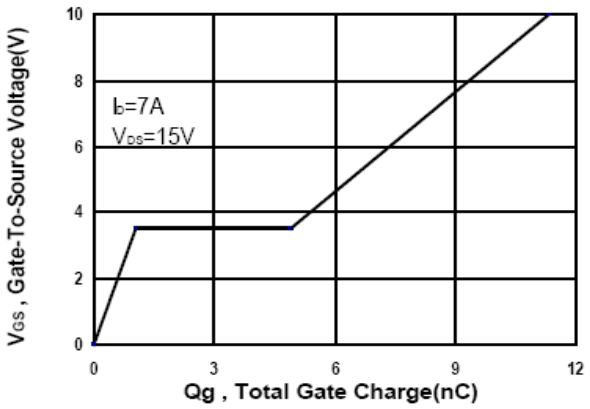
On-Resistance VS Temperature



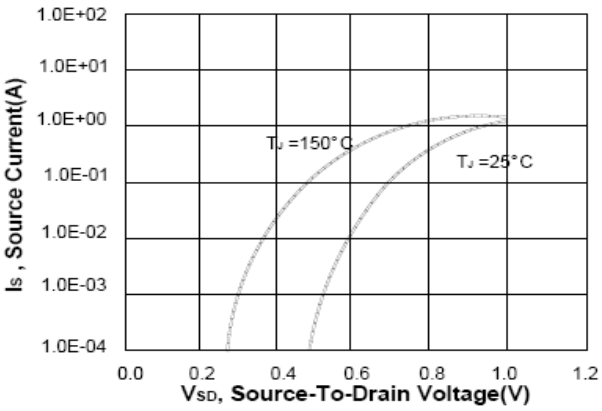
Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage



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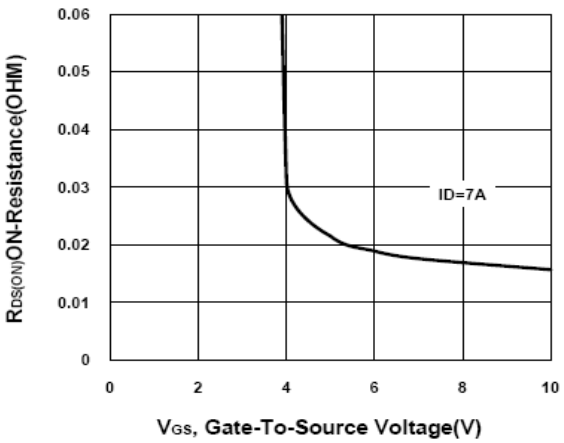
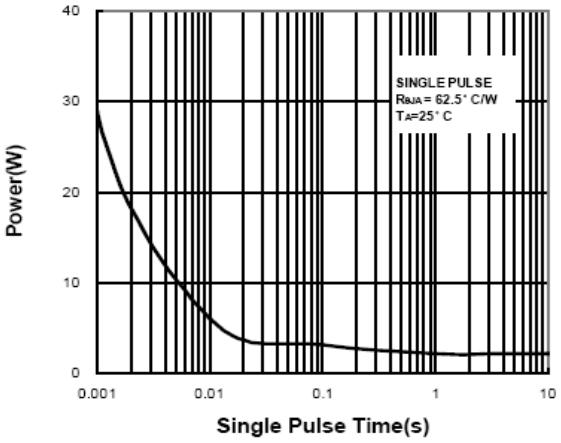
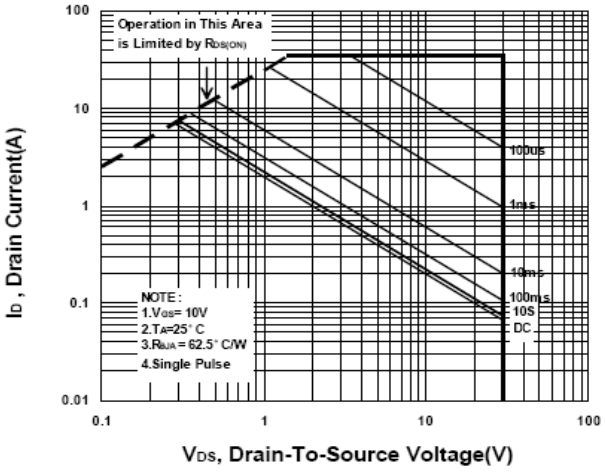
On-Resistance VS Gate-To-Source



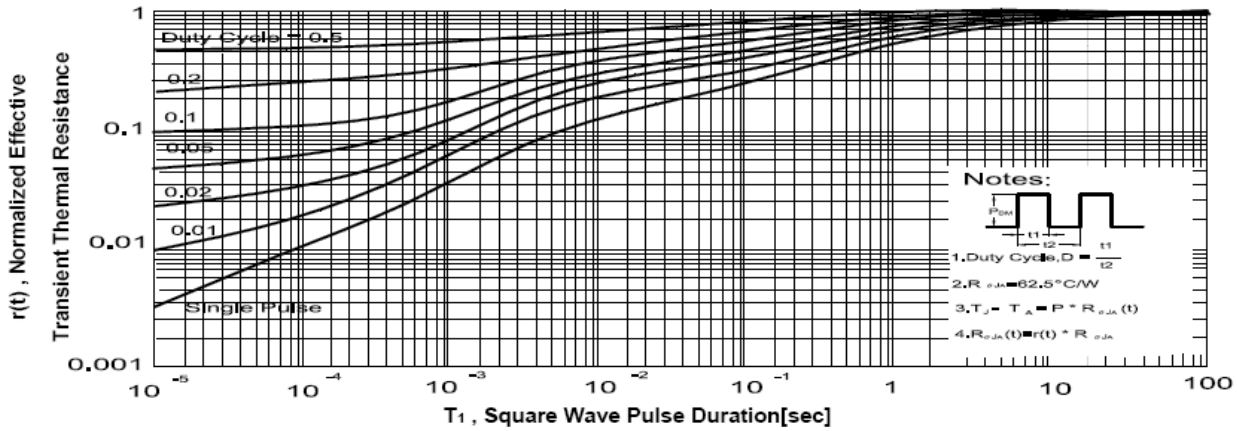
Single Pulse Maximum Power Dissipation



Safe Operating Area



Transient Thermal Response Curve



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Package Dimension

TSOP- 6 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.9		1	H	0.08		0.2
B	2.6		3	I	0.33		0.57
C	1.5		1.7	J			
D	2.8		3.02	K			
E	0.7		0.85	L			
F	0		0.1	M			
G	0.35		0.5	N