UNIKC Semiconductor

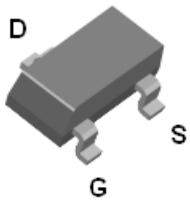
RoHS Compliant

PA606BMG

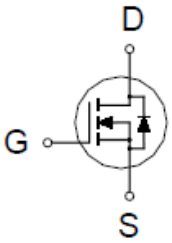
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
55V	180mΩ @V_{GS} = 10V	1.6A



SOT-23



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	55	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_A = 25 °C	I_D	1.6	A
	T_A = 70 °C		1	
Pulsed Drain Current[1]		I_{DM}	11	
Avalanche Current		I_{AS}	11	
Avalanche Energy	L = 0.1mH	E_{AS}	6	mJ
Power Dissipation	T_A = 25 °C	P_D	0.8	W
	T_A = 70 °C		0.3	
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	$R_{\theta JA}$		140	°C / W

[1]Pulse width limited by maximum junction temperature.

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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	55			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.5	2.5	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 44V, V_{GS} = 0V			1	μA
		V_{DS} = 40V, V_{GS} = 0V , T_J = 55 °C			10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 5V, V_{GS} = 10V	11			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 1.5A		158	250	mΩ
		V_{GS} = 10V, I_D = 1.6A		135	180	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 1.6A		6		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		243		pF
Output Capacitance	C_{oss}			18		
Reverse Transfer Capacitance	C_{rss}			14		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		2.3		Ω
Total Gate Charge[2]	Q_g	V_{DS} = 0.5V, V_{GS} = 10V, I_D = 1.6A		6.4		nC
Gate-Source Charge[2]	Q_{gs}			0.8		
Gate-Drain Charge[2]	Q_{gd}			2.5		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 30V, I_D ≅ 1.5A, V_{GS} = 10V, R_G = 1Ω		6		nS
Rise Time[2]	t_r			15		
Turn-Off Delay Time[2]	$t_{d(off)}$			15		
Fall Time[2]	t_f			10		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICE (T_J = 25 °C)						
Continuous Current	I_S				1.6	A
Forward Voltage[1]	V_{SD}	I_F = 1.6A, V_{GS} = 0V			1.2	V
Reverse Recovery Time	t_{rr}	I_F = 1.6A, dI/dt = 100A/μS		18.3		nS
Reverse Recovery Charge	Q_{rr}			13		nC

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

[2]Independent of operating temperature.

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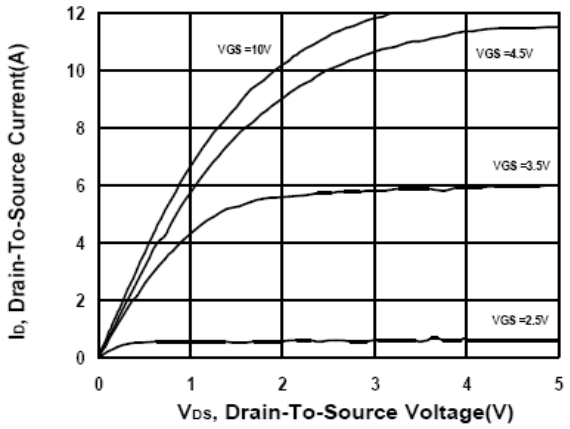
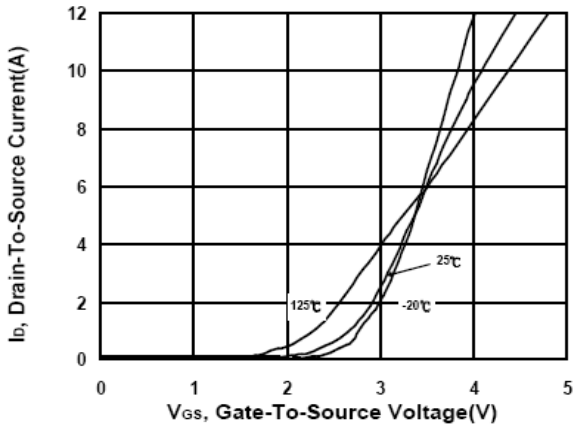
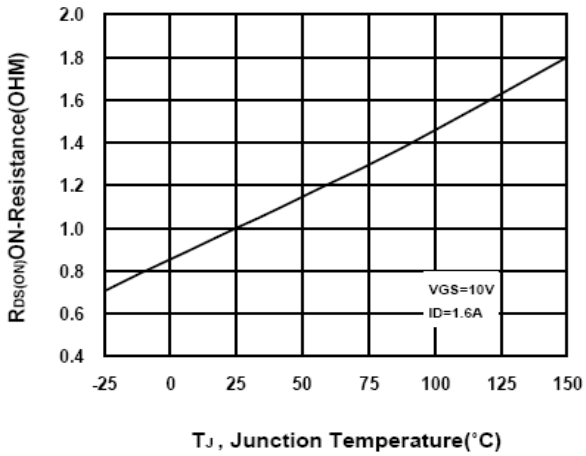
Output Characteristics



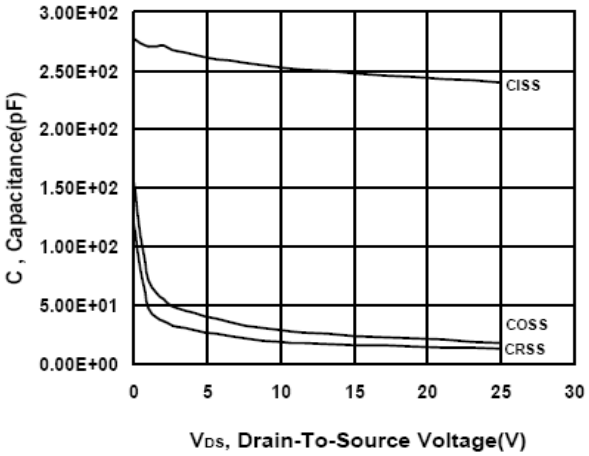
Transfer Characteristics



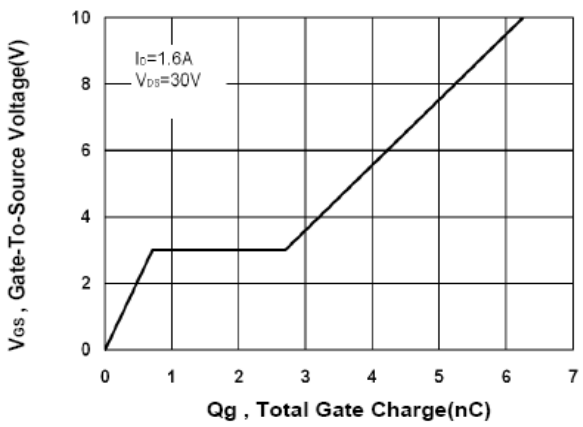
On-Resistance VS Temperature



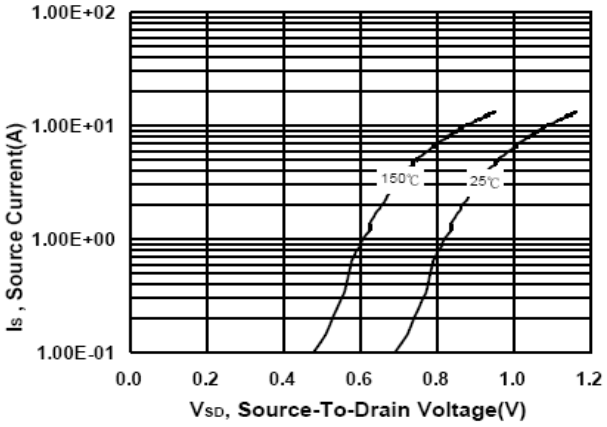
Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage



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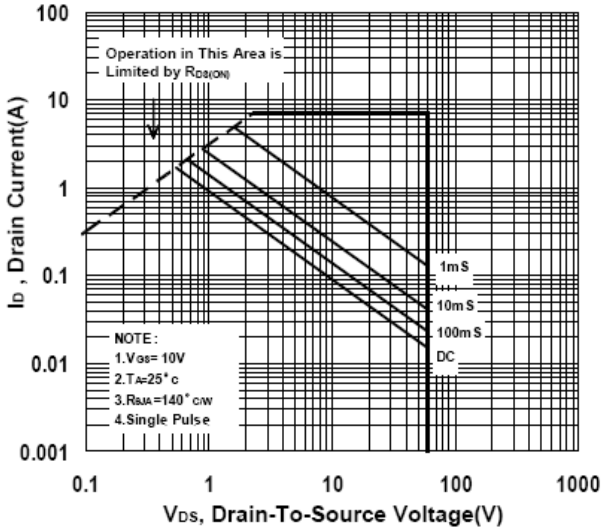
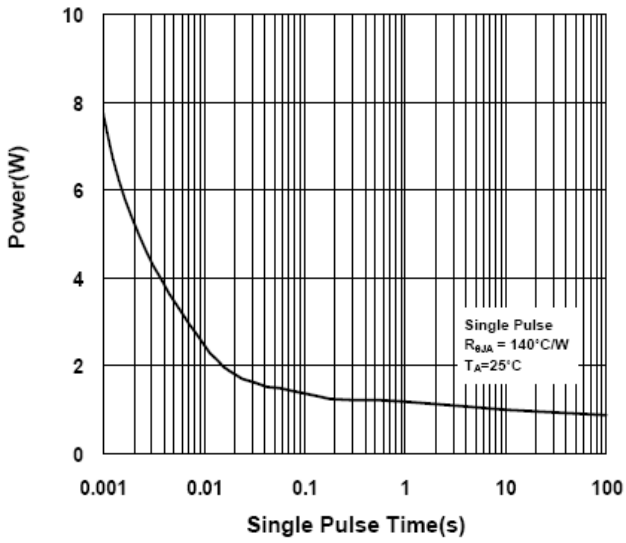
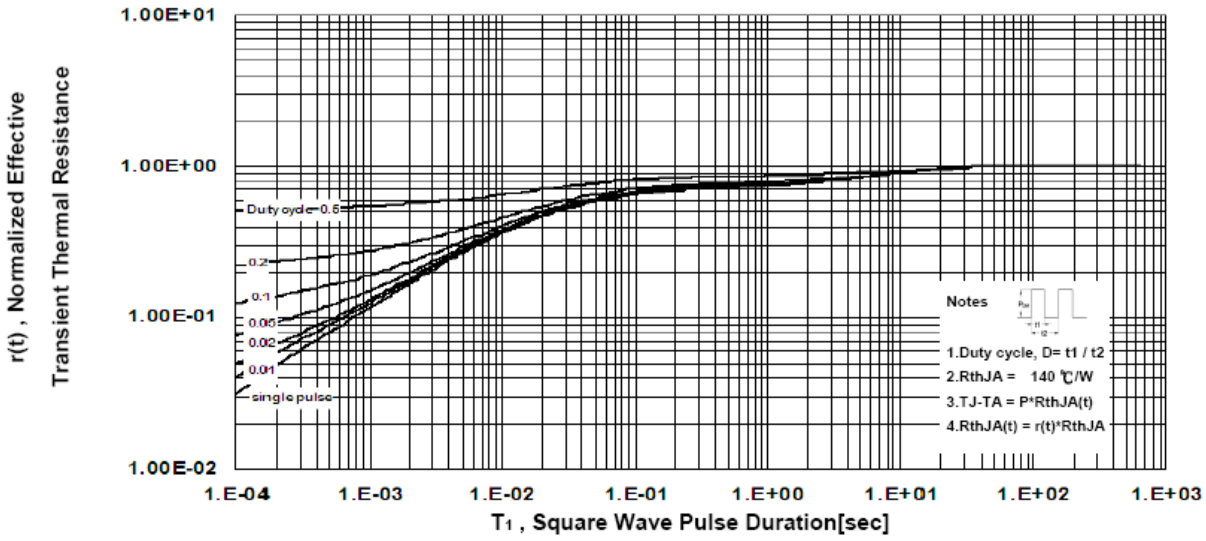
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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Package Dimension

SOT-23-3 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A		1.05		H	0.1		0.2
B	2.4		3	I	0.3		0.6
C	1.4		1.73				
D	2.7		3.1				
E	1		1.31				
F	0		0.15				
G	0.3		0.5