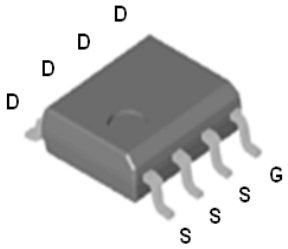
UNIKC Semiconductor

P0804BVG

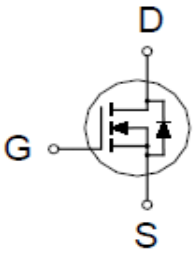
N-Channel Logic Level Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	12mΩ @V_{GS} = 10V	12A



SOP- 08



100% UIS tested
100% Rg tested

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C = 25 °C	I_D	12	A
	T_C= 100 °C		8	
Pulsed Drain Current[1]		I_{DM}	50	
Power Dissipation	T_C = 25 °C	P_D	2.5	W
	T_C = 100 °C		1	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C
Lead Temperature ($^1/_{16}$" from case for 10 sec.)		T_L	275	

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		25	°C / W
Junction-to-Ambient	$R_{\theta JA}$		50	
Case-to-Heatsink	$R_{\theta CS}$	0.5		

[1]Pulse width limited by maximum junction temperature.

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ELECTRICAL CHARACTERISTICS (T_C = 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	40			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.5	2.0	3.0	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±250	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 32V, V_{GS} = 0V			1	μA
		V_{DS} = 30V, V_{GS} = 0V , T_C = 125 °C			10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 10V, V_{GS} = 10V	50			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 7V, I_D = 12A		11	15	mΩ
		V_{GS} = 10V, I_D = 12A		7	12	
Forward Transconductance[1]	g_{fs}	V_{DS} = 10V, I_D = 12A		25		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 20V, f = 1MHz		2100	2730	pF
Output Capacitance	C_{oss}			360	450	
Reverse Transfer Capacitance	C_{rss}			330	415	
Total Gate Charge[2]	Q_g	V_{DS} = 0.5$V_{(BR)DSS}$, V_{GS} = 10V, I_D = 12A		43		nC
Gate-Source Charge[2]	Q_{gs}			6.3		
Gate-Drain Charge[2]	Q_{gd}			5.5		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 20V, R_L = 1Ω I_D ≅ 12A, V_{GS} = 10V, R_{GEN} = 6Ω		6.8	11.2	nS
Rise Time[2]	t_r			18.0	28.8	
Turn-Off Delay Time[2]	$t_{d(off)}$			26.5	42.5	
Fall Time[2]	t_f			8.7	15.8	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)						
Continuous Current	I_S				1.7	A
Forward Voltage[1]	V_{SD}	I_F = I_S, V_{GS} = 0V			1.4	V
Reverse Recovery Time	t_{rr}	I_F = 12A, dI_F/dt = 100A / μS		75		nS
Reverse Recovery Charge	Q_{rr}			55		nC

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

[2]Independent of operating temperature.

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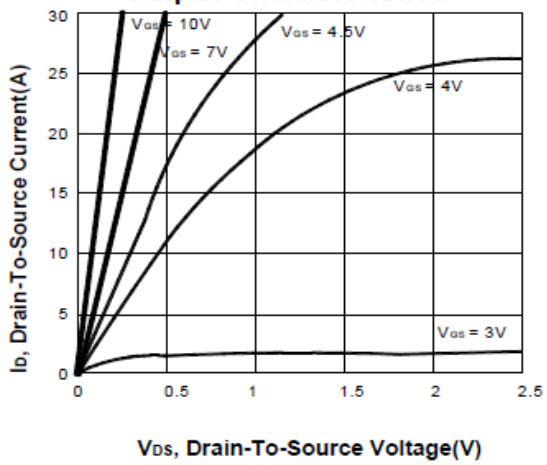
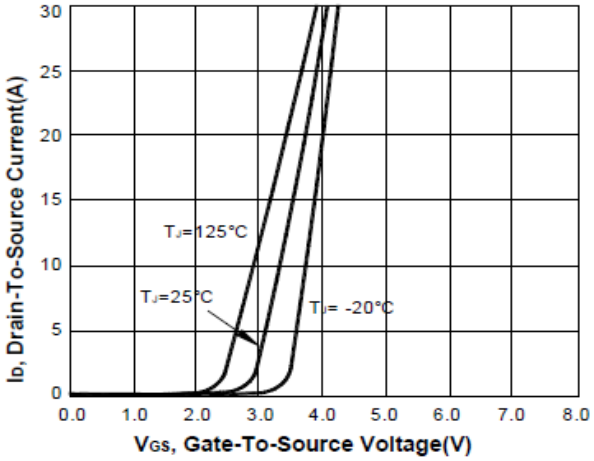
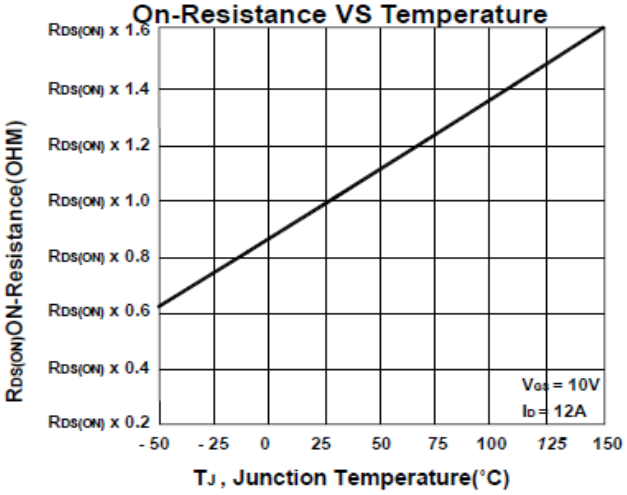
Output Characteristics



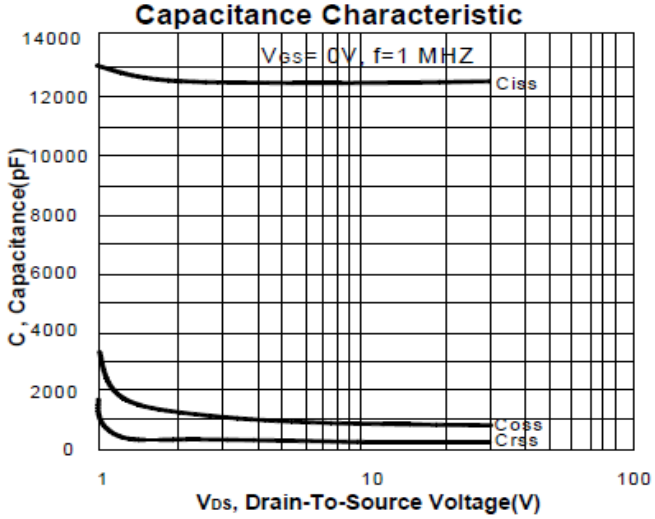
Transfer Characteristics



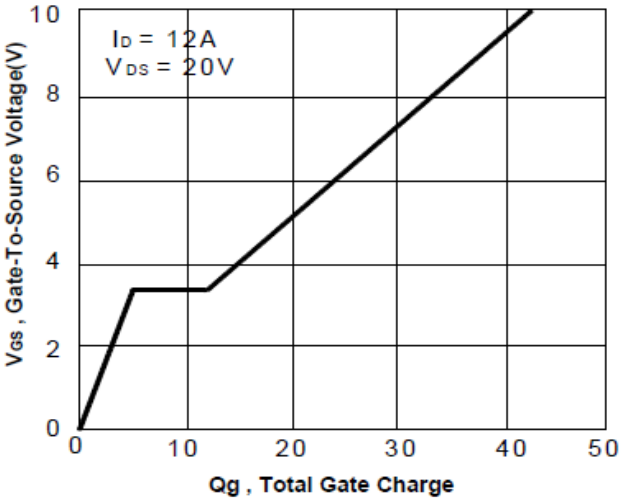
On-Resistance VS Temperature



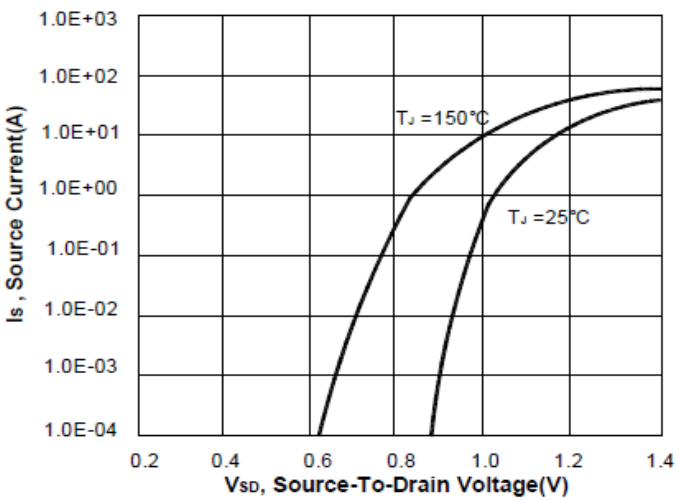
Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage



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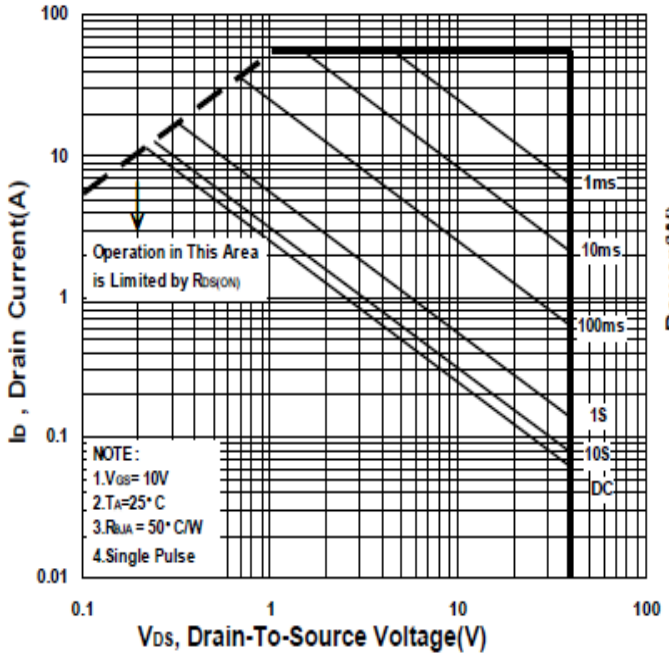
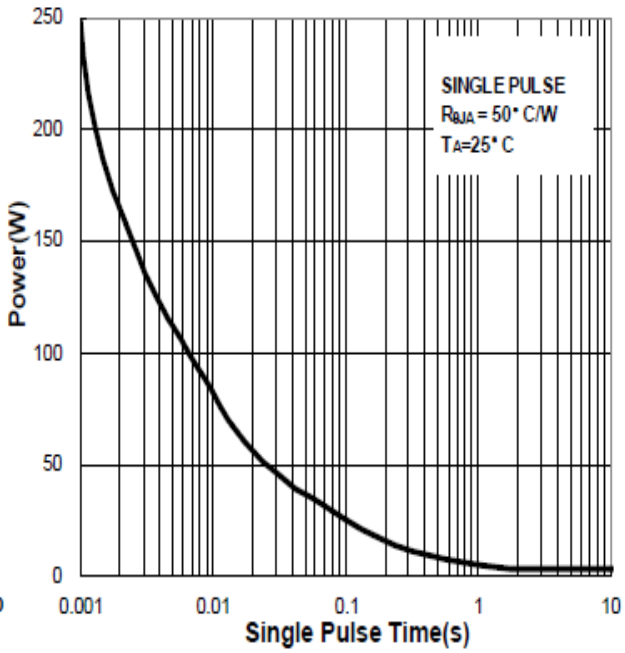
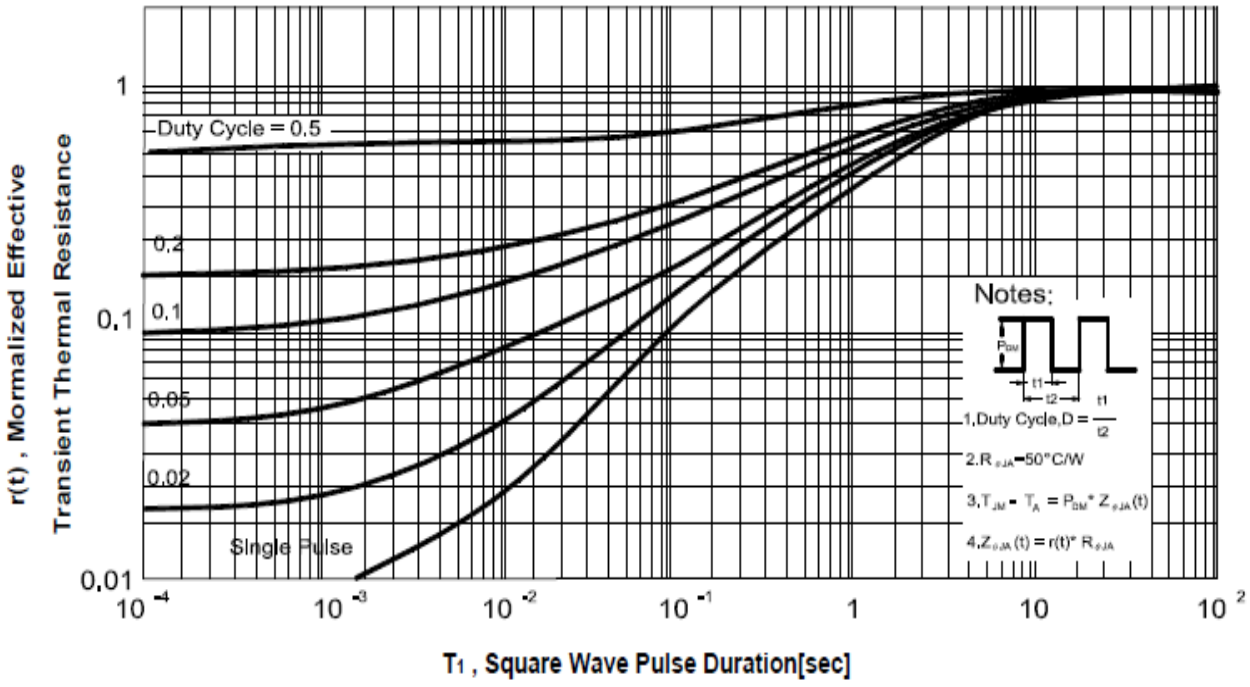
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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Package Dimension

SOP-8 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8	4.9	5.0	H	0.4	0.6	0.93
B	3.8	3.9	4.0	I	0.19	0.21	0.25
C	5.79	6.0	6.2	J	0.25	0.375	0.5
D	0.33	0.4	0.51	K	0°	3°	18°
E	1.25	1.27	1.29				
F	1.1	1.3	1.65				
G	0.05	0.15	0.25