UNIKC
Semiconductor

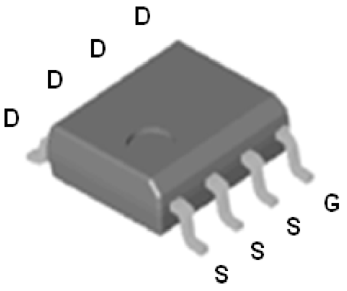
RoHS
Compliant

P0403BVG

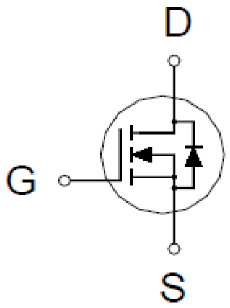
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	4.5mΩ @V_{GS} = 10V	18A



SOP-8



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	18	A
	T_A = 70 °C		15	
Pulsed Drain Current[1]		I_{DM}	80	
Avalanche Current		I_{AS}	50	
Avalanche Energy	L = 0.3mH	E_{AS}	380	mJ
Power Dissipation	T_A= 25 °C	P_D	2.5	W
	T_A =70 °C		1.6	
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	

[1] Pulse width limited by maximum junction temperature.

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ELECTRICAL CHARACTERISTICS (T_A = 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	1.6	3	
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	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 25A		4.1	4.5	mΩ
		V_{GS} = 4.5V, I_D = 22A		5.6	7.5	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 25A		80		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 15V, f = 1MHz		3670		pF
Output Capacitance	C_{oss}			1000		
Reverse Transfer Capacitance	C_{rss}			663		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		2.3		Ω
Total Gate Charge[2]	Q_g	V_{DS} = 0.5$V_{(BR)DSS}$, V_{GS} = 10V, I_D = 20A		80		nC
Gate-Source Charge[2]	Q_{gs}			16		
Gate-Drain Charge[2]	Q_{gd}			14.5		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 15V,R_L = 15Ω, I_D ≅ 1A,V_{GS} = 10V, R_{GEN} = 6Ω		22		nS
Rise Time[2]	t_r			10		
Turn-Off Delay Time[2]	$t_{d(off)}$			42		
Fall Time[2]	t_f			10		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS(T_A = 25 °C)						
Continuous Current	I_S				2.5	A
Forward Voltage[1]	V_{SD}	I_F = I_S,, V_{GS} = 0V			1	V

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

[2] Independent of operating temperature.

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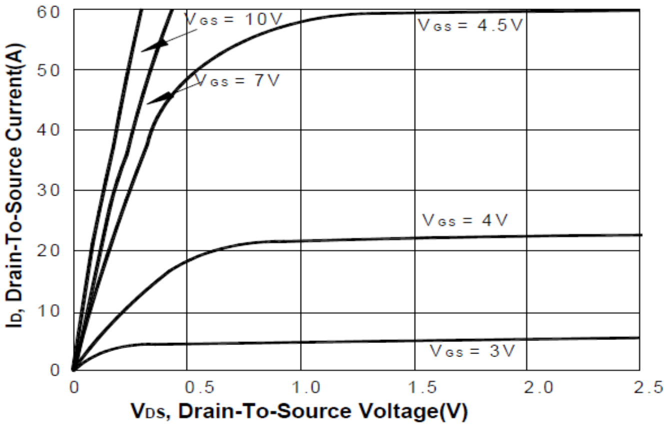
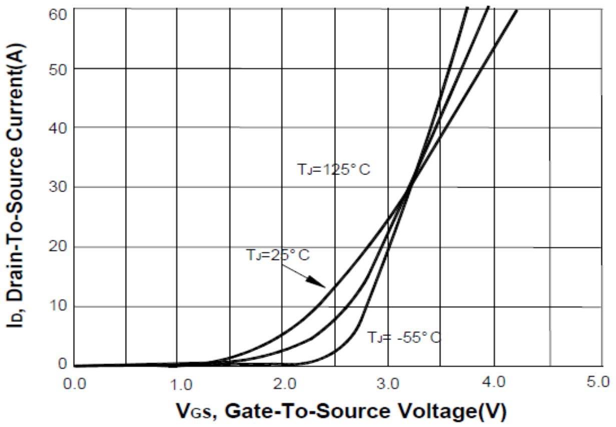
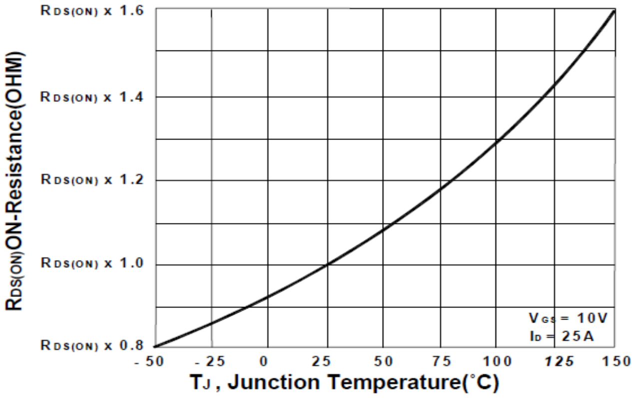
Output Characteristics



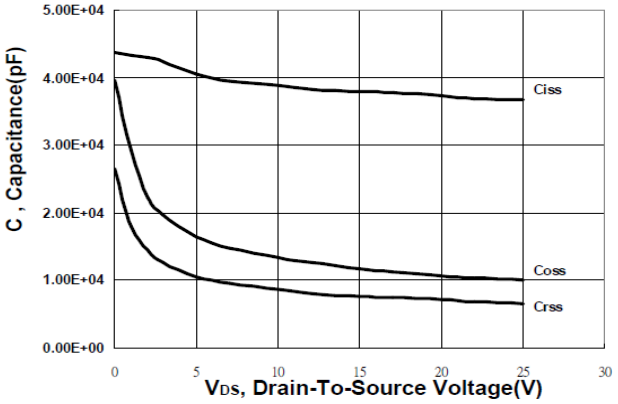
Transfer Characteristics



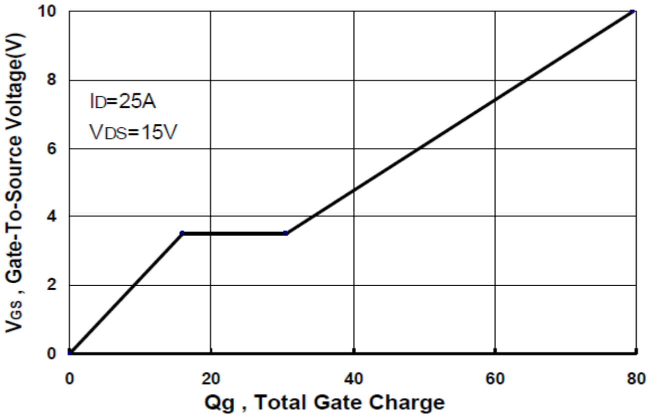
On-Resistance VS Temperature



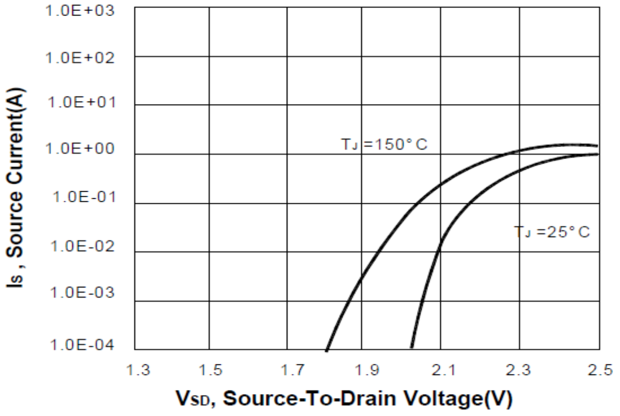
Capacitance Characteristic



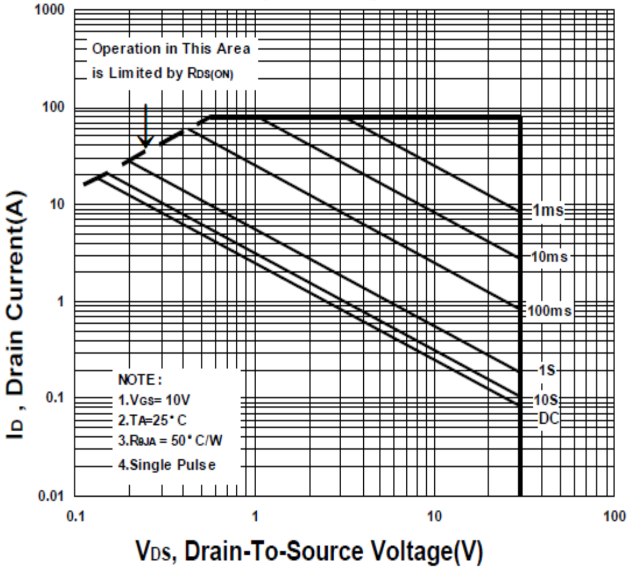
Gate charge Characteristics



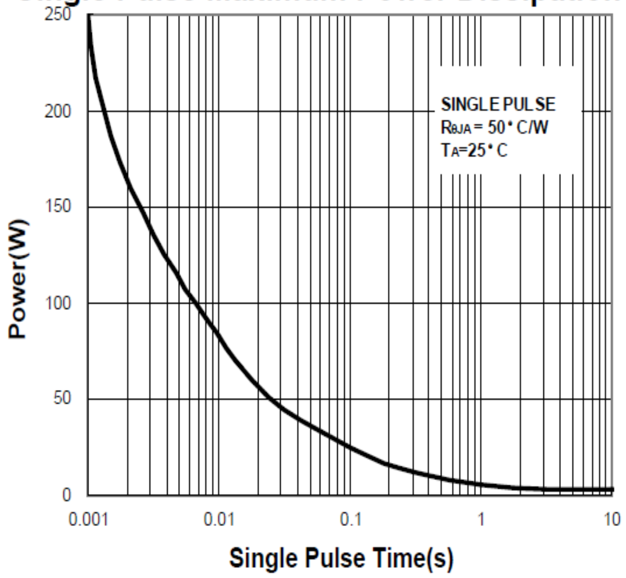
Source-Drain Diode Forward Voltage



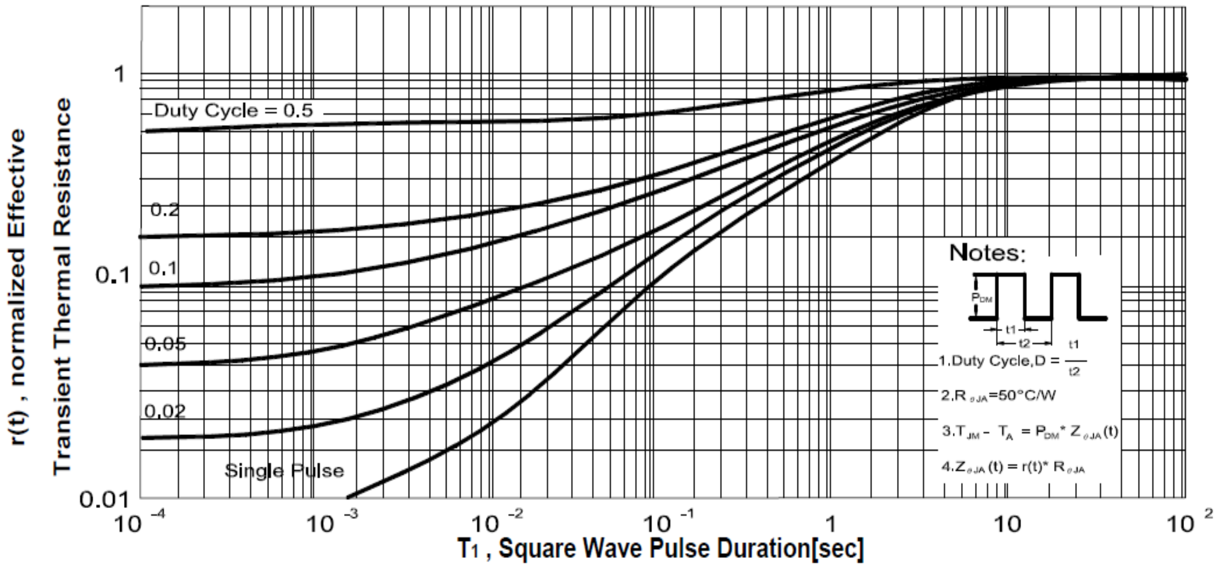
Safe Operating Area



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