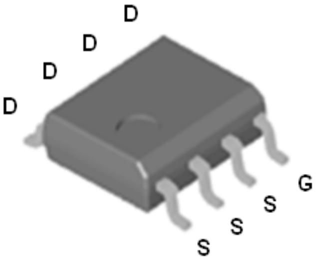
UNIKC
Semiconductor

PV606BA

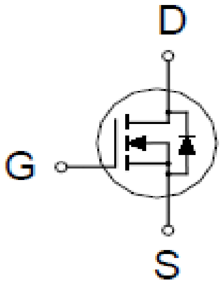
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	18mΩ @V_{GS} = 10V	7.7A



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	V
Continuous Drain Current	T_A = 25 °C	I_D	7.7	A
	T_A = 70 °C		6	
Pulsed Drain Current[1]		I_{DM}	28	
Avalanche Current		I_{AS}	12.6	
Avalanche Energy	L =0.1mH	E_{AS}	7.9	mJ
Power Dissipation	T_A= 25 °C	P_D	1.8	W
	T_A =70 °C		1.1	
Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		69	°C / W
Junction-to-Case	$R_{\theta JC}$		25	

[1] Pulse width limited by maximum junction temperature.

[2] 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	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.3	1.75	2.3	
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} = 4.5V, I_D = 6A		19	27	mΩ
		V_{GS} = 10V, I_D = 7A		14	18	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 7A		33		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 15V, f = 1MHz		329		pF
Output Capacitance	C_{oss}			68		
Reverse Transfer Capacitance	C_{rss}			48		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		2.5		Ω
Total Gate Charge[2]	$Q_g(V_{GS}=10V)$	V_{DS} = 15V , I_D = 7A		8.1		nC
	$Q_g(V_{GS}=4.5V)$			4.5		
Gate-Source Charge[2]	Q_{gs}			1.1		
Gate-Drain Charge[2]	Q_{gd}			2.4		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 15V, I_D ≅ 7A, V_{GS} = 10V, R_{GEN} = 6Ω		15		nS
Rise Time[2]	t_r			15		
Turn-Off Delay Time[2]	$t_{d(off)}$			32		
Fall Time[2]	t_f			15		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				1.6	A
Forward Voltage[1]	V_{SD}	I_F = 7A, V_{GS} = 0V			1.1	V
Diode Reverse Recovery Time	t_{rr}	I_F = 7A, dI/dt = 100A /μS		9		nS
Diode Reverse Recovery Charge	Q_{rr}			3		nC

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

[2] Independent of operating temperature.

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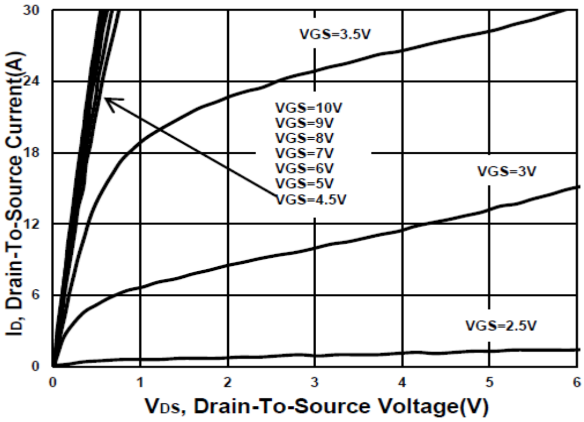
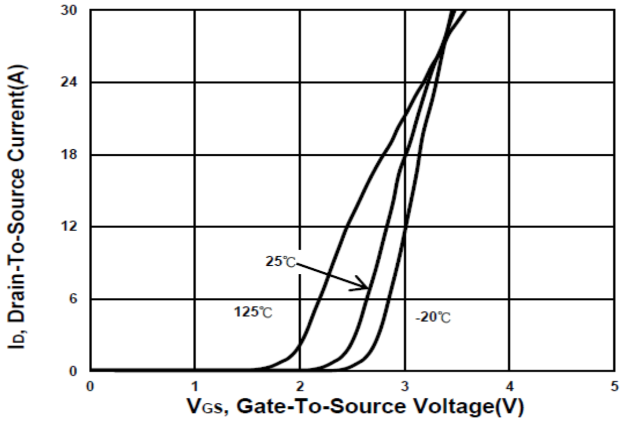
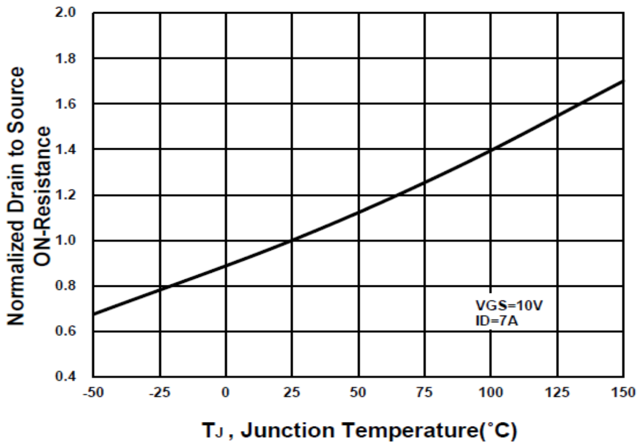
Output Characteristics



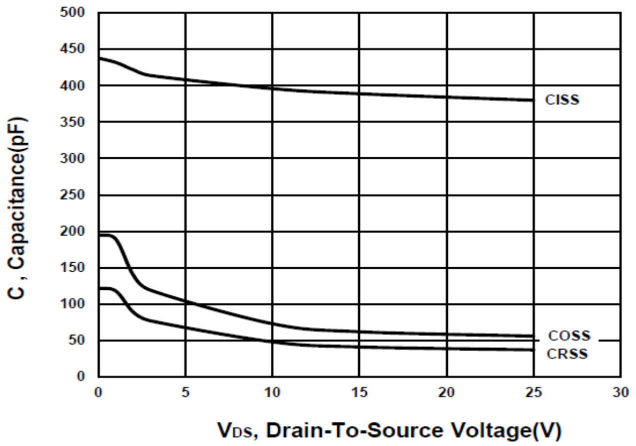
Transfer Characteristics



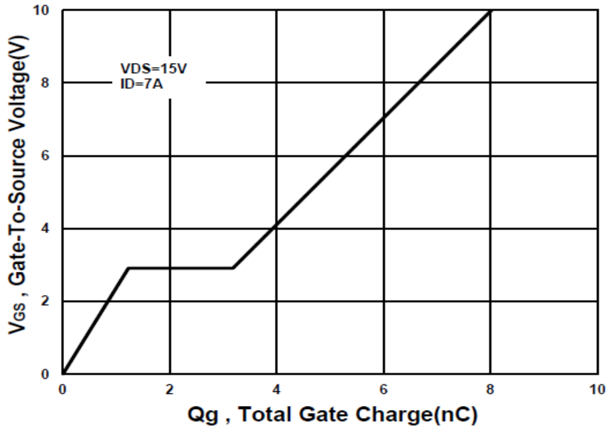
On-Resistance VS Temperature



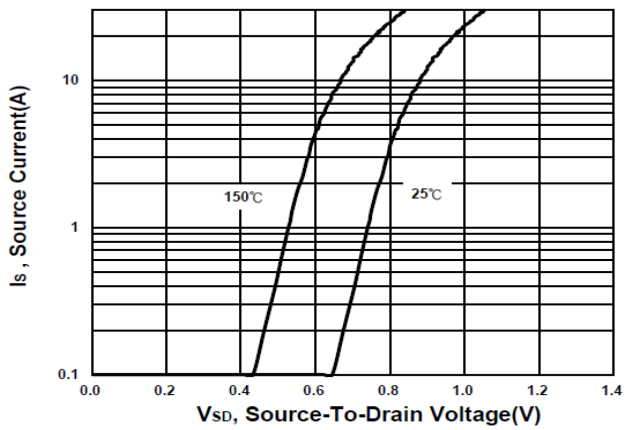
Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage



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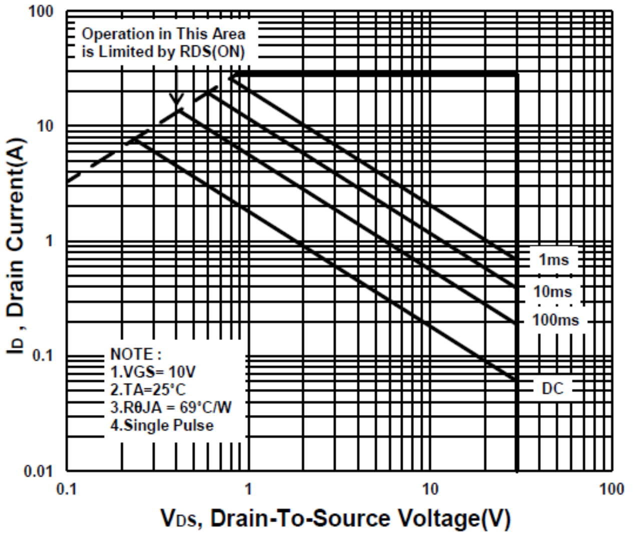
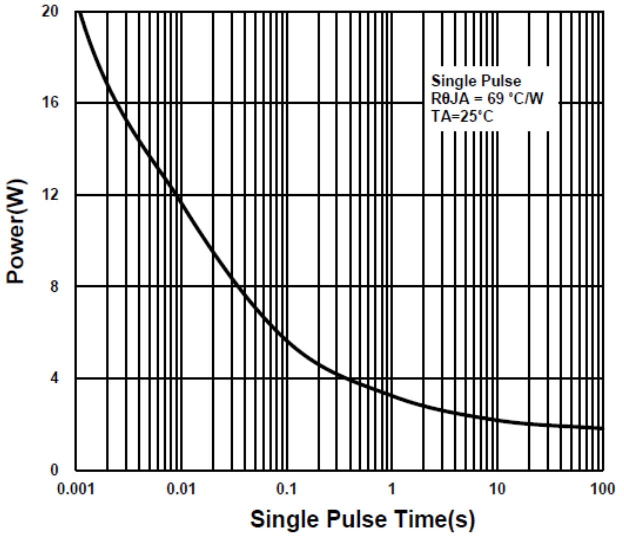
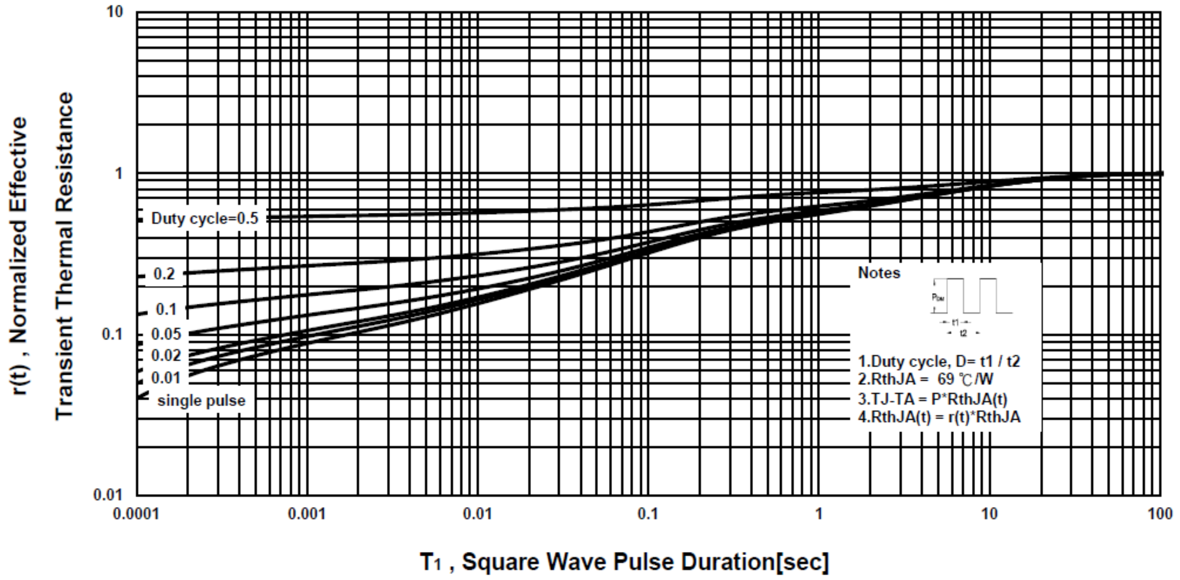

Safe Operating Area


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