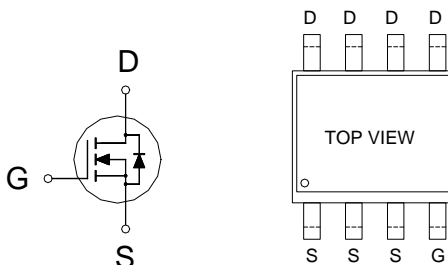


**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
30	20mΩ	9.5A



G : GATE  
D : DRAIN  
S : SOURCE

**100% Rg tested  
100% UIS tested**

**ABSOLUTE MAXIMUM RATINGS ( $T_c = 25\text{ °C}$  Unless Otherwise Noted)**

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		$V_{DS}$	30	V
Gate-Source Voltage		$V_{GS}$	±25	V
Continuous Drain Current	$T_A = 25\text{ °C}$	$I_D$	9.5	A
	$T_A = 70\text{ °C}$		7.5	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	35	
Avalanche Current		$I_{AS}$	8	
Avalanche Energy	L = 0.1mH	$E_{AS}$	3.2	mJ
Power Dissipation	$T_A = 25\text{ °C}$	$P_D$	2.5	W
	$T_A = 70\text{ °C}$		1.6	
Junction & Storage Temperature Range		$T_j, T_{stg}$	-55 to 150	°C
Lead Temperature ( <sup>1/16"</sup> from case for 10 sec.)		$T_L$	275	

**THERMAL RESISTANCE RATINGS**

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		50	°C / W

<sup>1</sup>Pulse width limited by maximum junction temperature.

**ELECTRICAL CHARACTERISTICS ( $T_c = 25\text{ °C}$ , Unless Otherwise Noted)**

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	2.5	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$			±100	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 55\text{ °C}$			10	

On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	35			A		
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6A$		26	32	mΩ		
		$V_{GS} = 10V, I_D = 8A$		17	20			
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = 15V, I_D = 8A$		16		S		
<b>DYNAMIC</b>								
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		524		pF		
Output Capacitance	$C_{oss}$			132				
Reverse Transfer Capacitance	$C_{rss}$			62				
Gate Resistance	$R_g$	$V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz$		2.14		Ω		
Total Gate Charge <sup>2</sup>	$Q_{g(VGS=10V)}$	$V_{DS} = 0.5V_{(BR)DSS}, I_D = 2A$		10		nC		
	$Q_{g(VGS=4.5V)}$			4.7				
Gate-Source Charge <sup>2</sup>	$Q_{gs(VGS=10V)}$			1.3				
	$Q_{gs(VGS=4.5V)}$			1.2				
Gate-Drain Charge <sup>2</sup>	$Q_{gd(VGS=10V)}$			2.1				
	$Q_{gd(VGS=4.5V)}$			2.1				
Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$		$V_{DD} = 15V$ $I_D \cong 1A, V_{GEN} = 10V, R_G = 0.2\Omega$		11		18	nS
Rise Time <sup>2</sup>	$t_r$				17		26	
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$			37	54			
Fall Time <sup>2</sup>	$t_f$			20	30			
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>c</sub> = 25 °C)</b>								
Continuous Current	$I_S$				2.3	A		
Pulsed Current <sup>3</sup>	$I_{SM}$				4.6			
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = 1A, V_{GS} = 0V$			1.1	V		
Reverse Recovery Time	$t_{rr}$	$I_F = 2.3A, di_F/dt = 100A / \mu S$		50	80	nS		

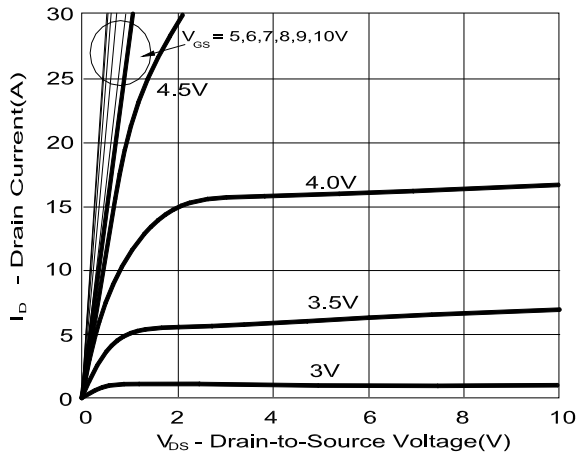
<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

<sup>2</sup>Independent of operating temperature.

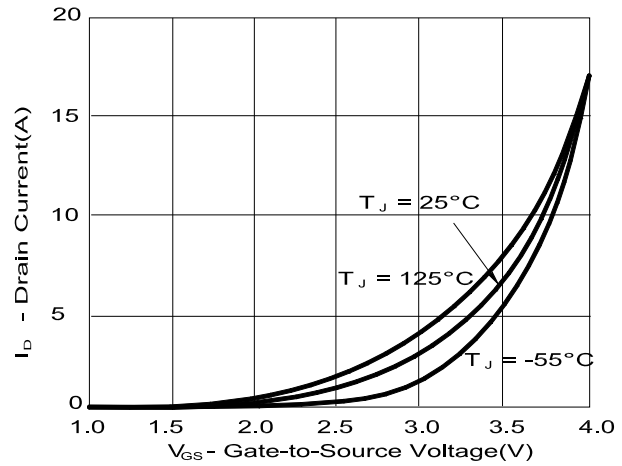
<sup>3</sup>Pulse width limited by maximum junction temperature.

**REMARK: THE PRODUCT MARKED WITH "P2003BV", DATE CODE or LOT #**

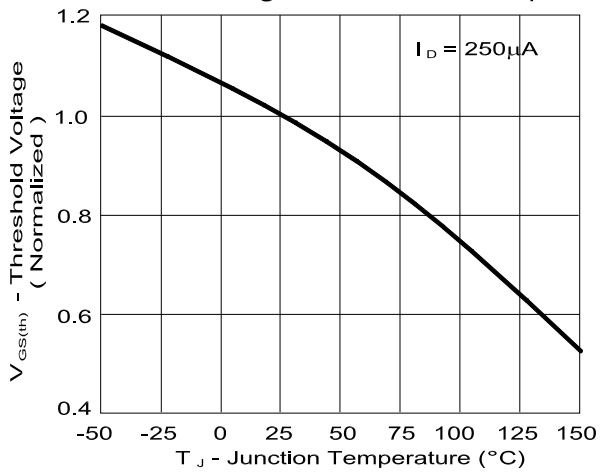
**Output Characteristics**



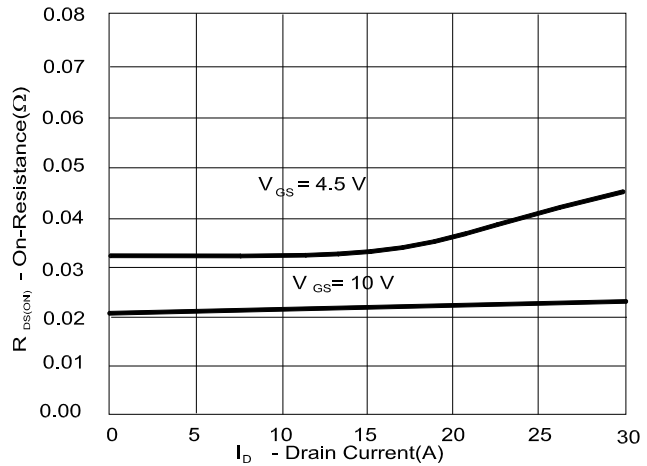
**Transfer Characteristics**



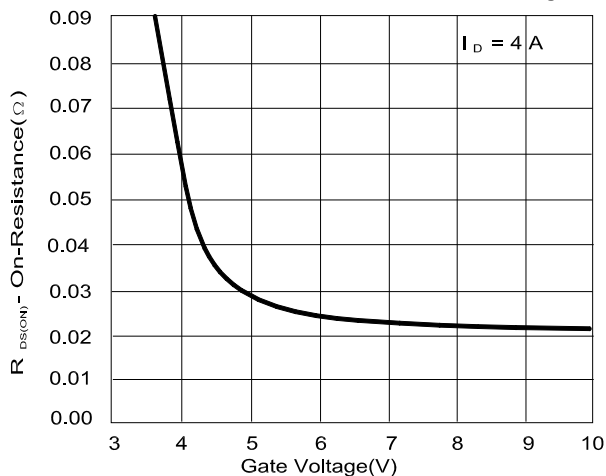
**Threshold Voltage vs. Junction Temperature**



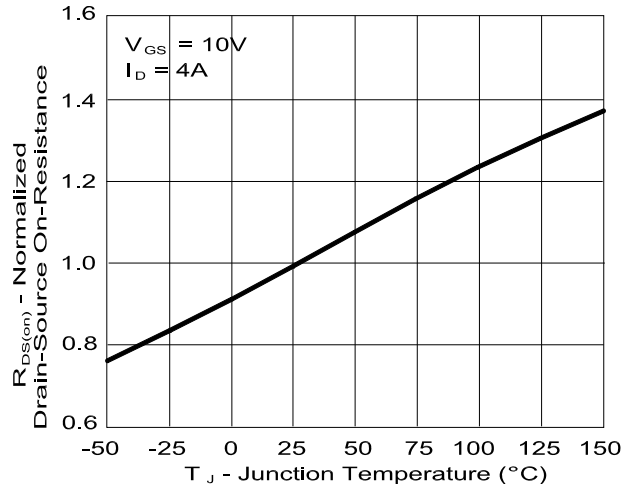
**On-Resistance vs. Drain Current**

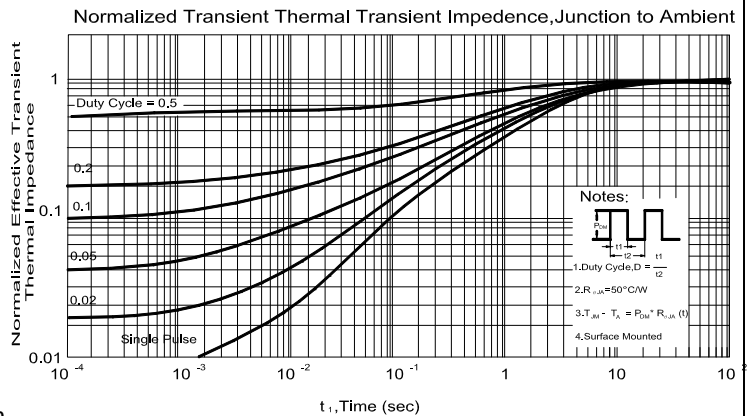
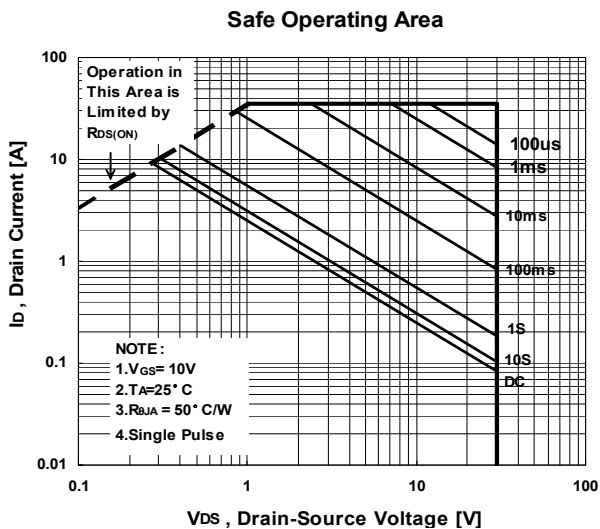
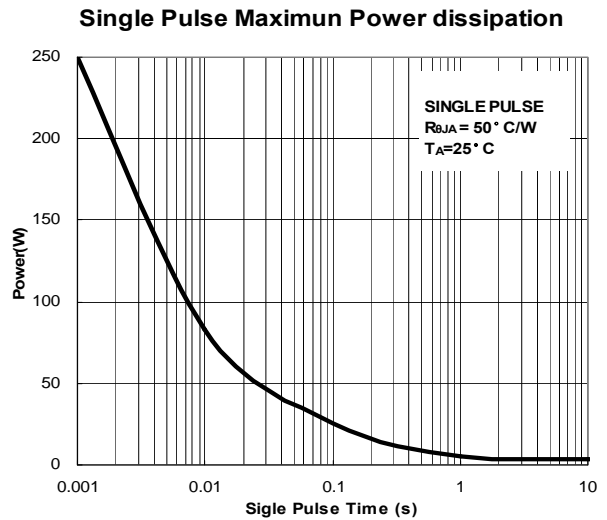
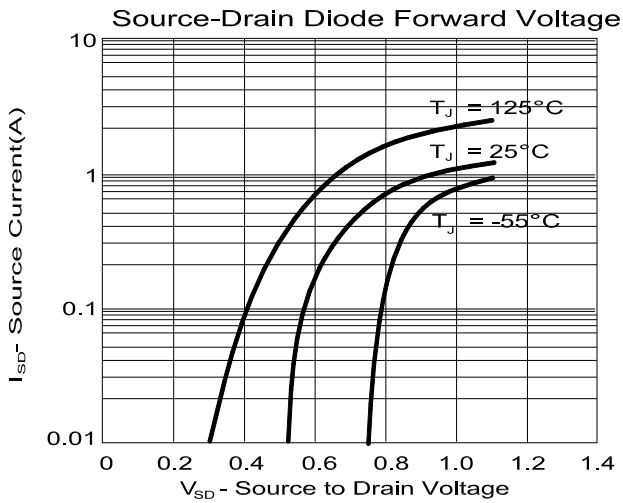
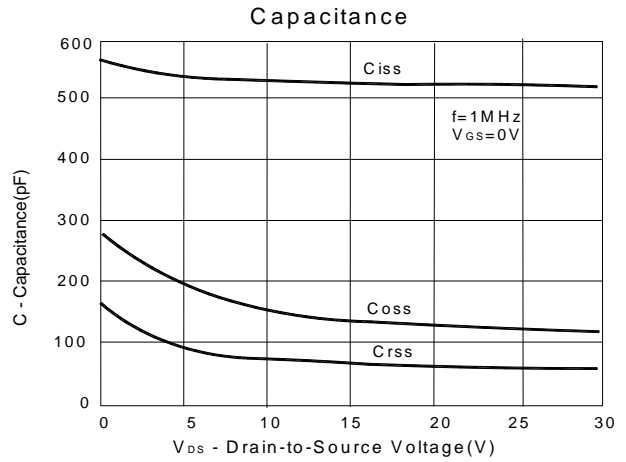
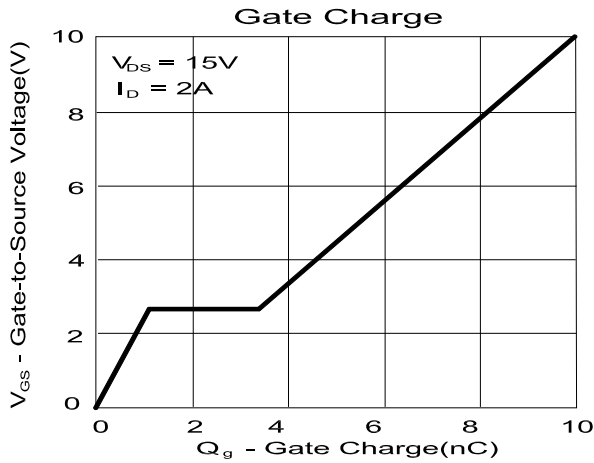


**On-Resistance vs. Gate-to-Source Voltage**



**On-Resistance vs. Junction Temperature**





**SOIC-8(D) MECHANICAL DATA**

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8	4.9	5.0	H	0.4	0.715	0.83
B	3.8	3.9	4.0	I	0.19	0.22	0.25
C	5.8	6.0	6.2	J	0.25	0.375	0.5
D	0.33	0.445	0.51	K	0°	4°	8°
E		1.27		L			
F	1.25	1.375	1.62	M			
G	0.1	0.175	0.25	N			

