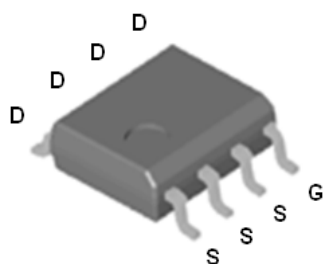


P2003BVT

N-Channel Enhancement Mode MOSFET

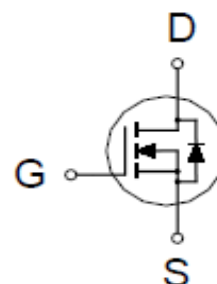
PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	20m Ω @ $V_{GS} = 10V$	9A



SOP-8

100% Rg tested
100% UIS tested



ABSOLUTE MAXIMUM RATINGS ($T_C = 25\text{ }^{\circ}\text{C}$ 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	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	9	A
	$T_A = 70\text{ }^{\circ}\text{C}$		7	
Pulsed Drain Current ¹		I_{DM}	35	
Avalanche Current		I_{AS}	8	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	3.2	mJ
Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	2.5	W
	$T_A = 70\text{ }^{\circ}\text{C}$		1.6	
Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^{\circ}\text{C}$
Lead Temperature (¹ / ₁₆ " from case for 10 sec.)		T_L	275	

THERMAL RESISTANCE RATINGS

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

¹Pulse width limited by maximum junction temperature.

P2003BVT

N-Channel Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	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
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 55^\circ C$			10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	9			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6A$		26	32	mΩ
		$V_{GS} = 10V, I_D = 8A$		17	20	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 15V, I_D = 8A$		16		S
DYNAMIC						
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 ²	$Q_g(V_{GS}=10V)$	$V_{DS} = 0.5V_{(BR)DSS}, I_D = 2A$		10		nC
	$Q_g(V_{GS}=4.5V)$			4.7		
Gate-Source Charge ²	$Q_{gs}(V_{GS}=10V)$			1.3		
	$Q_{gs}(V_{GS}=4.5V)$			1.2		
Gate-Drain Charge ²	$Q_{gd}(V_{GS}=10V)$			2.1		
	$Q_{gd}(V_{GS}=4.5V)$			2.1		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = 15V, I_D \cong 1A,$ $V_{GEN} = 10V, R_G = 0.2\Omega$		11	18	nS
Rise Time ²	t_r			17	26	
Turn-Off Delay Time ²	$t_{d(off)}$			37	54	
Fall Time ²	t_f			20	30	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _c = 25 °C)						
Continuous Current	I_S				2.3	A
Forward Voltage ¹	V_{SD}	$I_F = 1A, V_{GS} = 0V$			1.1	V

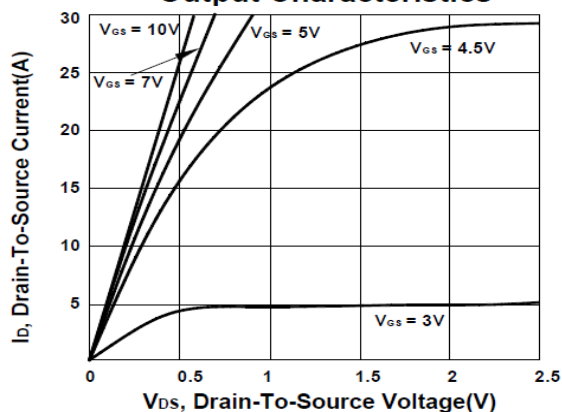
¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

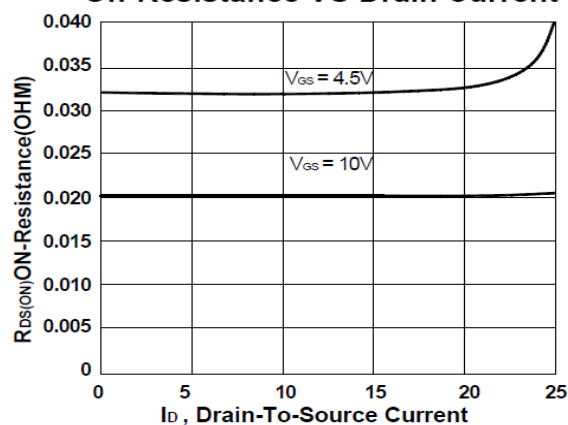
P2003BVT

N-Channel Enhancement Mode MOSFET

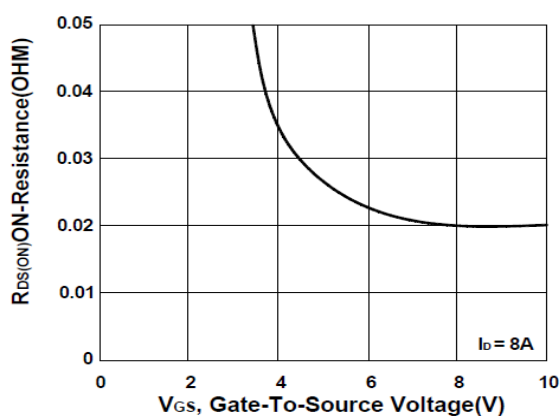
Output Characteristics



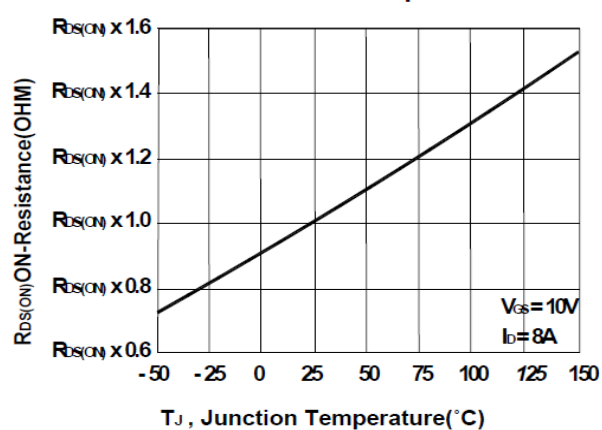
On-Resistance VS Drain Current



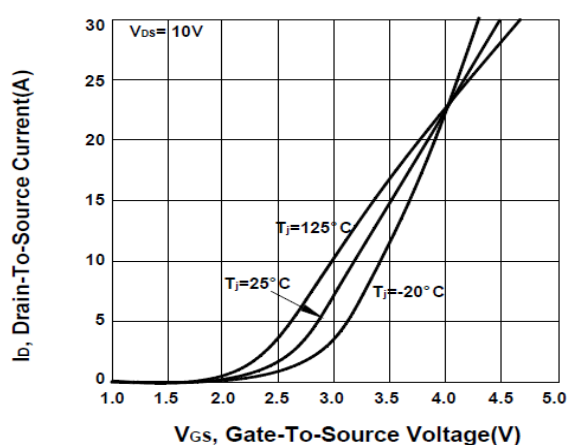
On-Resistance VS Gate-To-Source



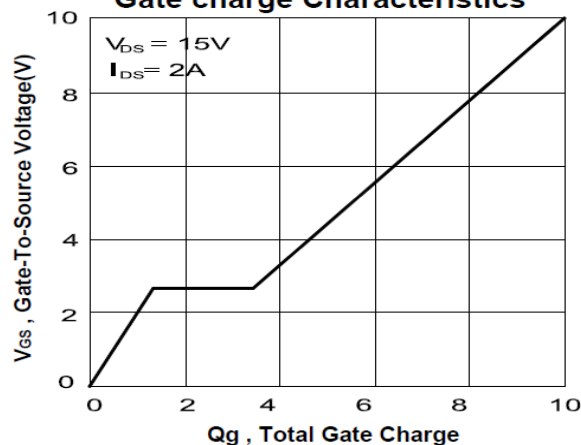
Resistance VS Temperature



Transfer Characteristics



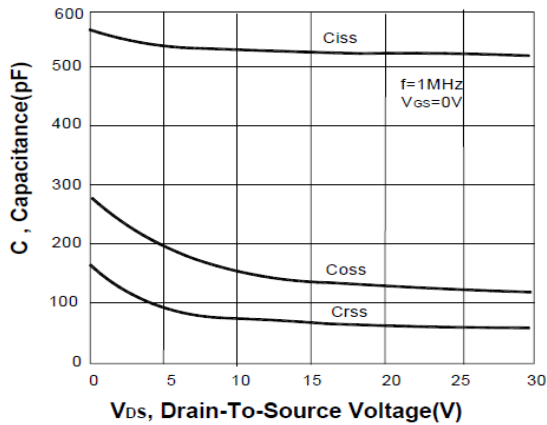
Gate charge Characteristics



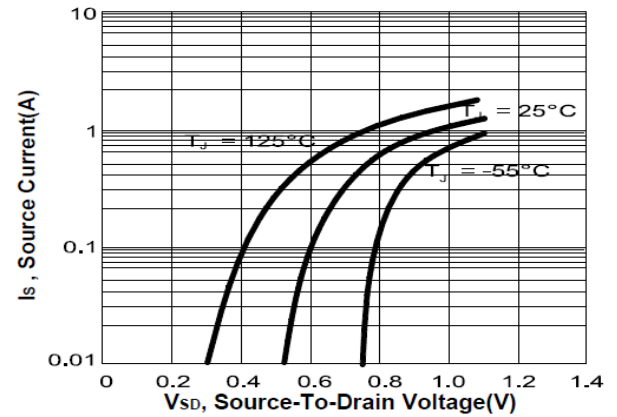
P2003BVT

N-Channel Enhancement Mode MOSFET

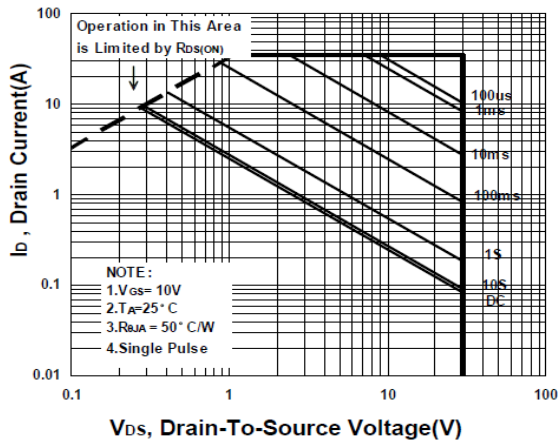
Capacitance Characteristic



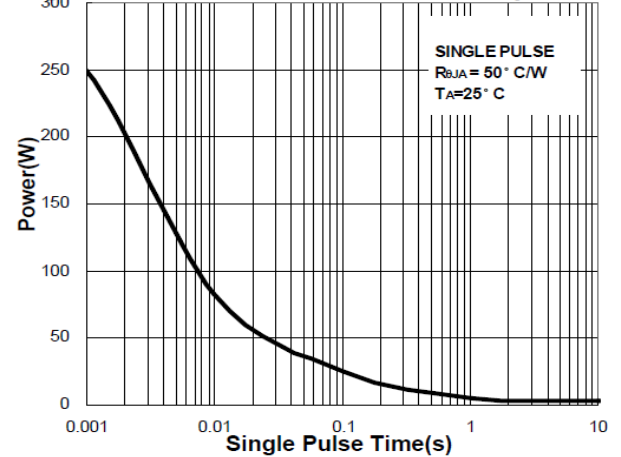
Body Diode Characteristics



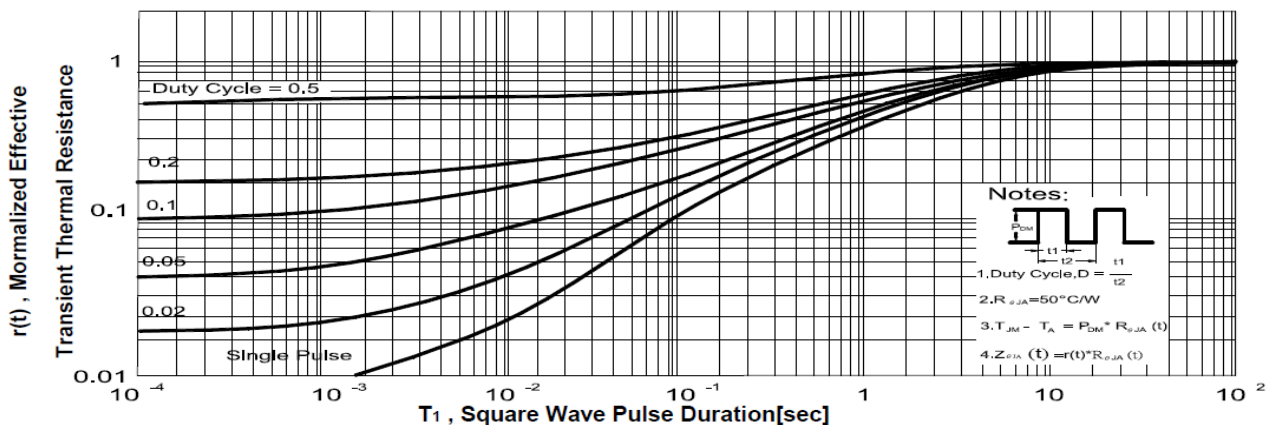
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



P2003BVT

N-Channel Enhancement Mode MOSFET

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				

