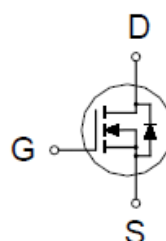
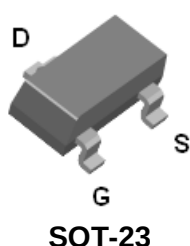


P8503BMG

N-Channel Logic Level Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	85mΩ @ $V_{GS} = 10V$	2.4A



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	$T_A = 25\text{ °C}$	I_D	2.4	A
	$T_A = 100\text{ °C}$		1.5	
Pulsed Drain Current ¹		I_{DM}	10	
Avalanche Current		I_{AS}	12	
Avalanche Energy	$L = 0.1mH$	E_{AS}	7	mJ
Power Dissipation	$T_A = 25\text{ °C}$	P_D	0.75	W
	$T_A = 100\text{ °C}$		0.3	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		166	°C / W

¹Pulse width limited by maximum junction temperature.

P8503BMG

N-Channel Logic Level Enhancement Mode MOSFET

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	0.8	1.7	2.5	
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 = 125 °C			10	
On-State Drain Current ¹	I _{D(ON)}	V _{DS} = 10V, V _{GS} = 10V	10			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 1.5A		72	115	mΩ
		V _{GS} = 10V, I _D = 3A		50	85	
Forward Transconductance ¹	g _{fs}	V _{DS} = 15V, I _D = 3A		16		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		217		pF
Output Capacitance	C _{oss}			68		
Reverse Transfer Capacitance	C _{rss}			46		
Total Gate Charge ²	Q _{g(4.5V)}	V _{DS} = 0.5V _{(BR)DSS} , I _D = 3A		3		nC
	Q _{g(10V)}			6.2		
Gate-Source Charge ²	Q _{gs(4.5V)}			0.7		
	Q _{gs(10V)}			0.7		
Gate-Drain Charge ²	Q _{gd(4.5V)}			1.5		
	Q _{gd(10V)}			2.1		
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = 15V, R _L = 1Ω I _D ≅ 3A, V _{GS} = 10V, R _{GS} = 2.5Ω		6		nS
Rise Time ²	t _r			6		
Turn-Off Delay Time ²	t _{d(off)}			20		
Fall Time ²	t _f			5		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICE (T _J = 25 °C)						
Continuous Current	I _S				2.4	A
Forward Voltage ¹	V _{SD}	I _F = I _S , V _{GS} = 0V			1.5	V

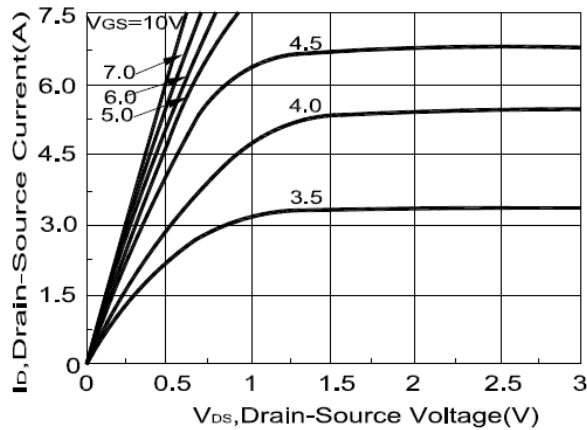
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

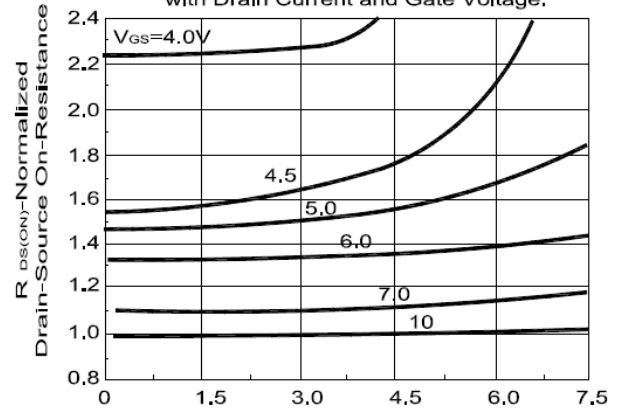
P8503BMG

N-Channel Logic Level Enhancement Mode MOSFET

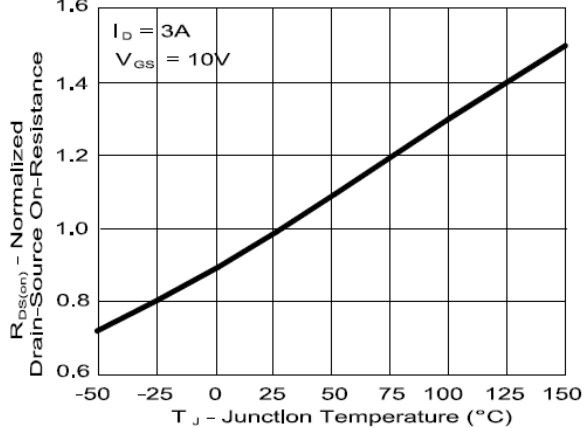
On-Region Characteristics.



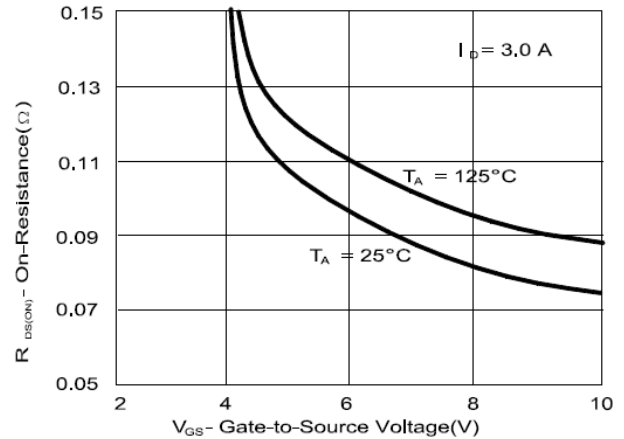
On-Resistance Variation with Drain Current and Gate Voltage.



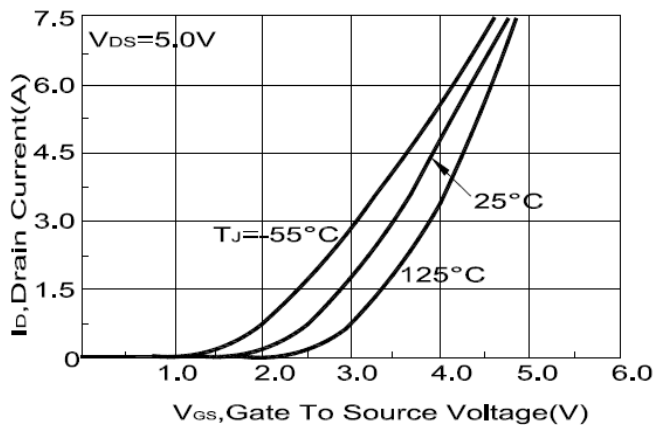
On-Resistance Variation with Temperature



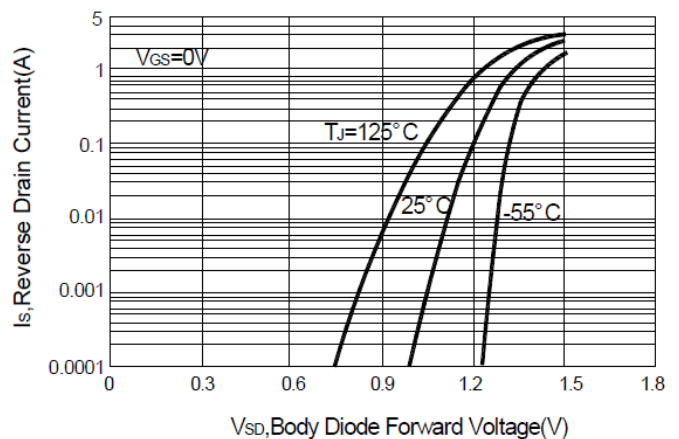
On-Resistance Variation with Gate-to-Source Voltage



Transfer Characteristics.

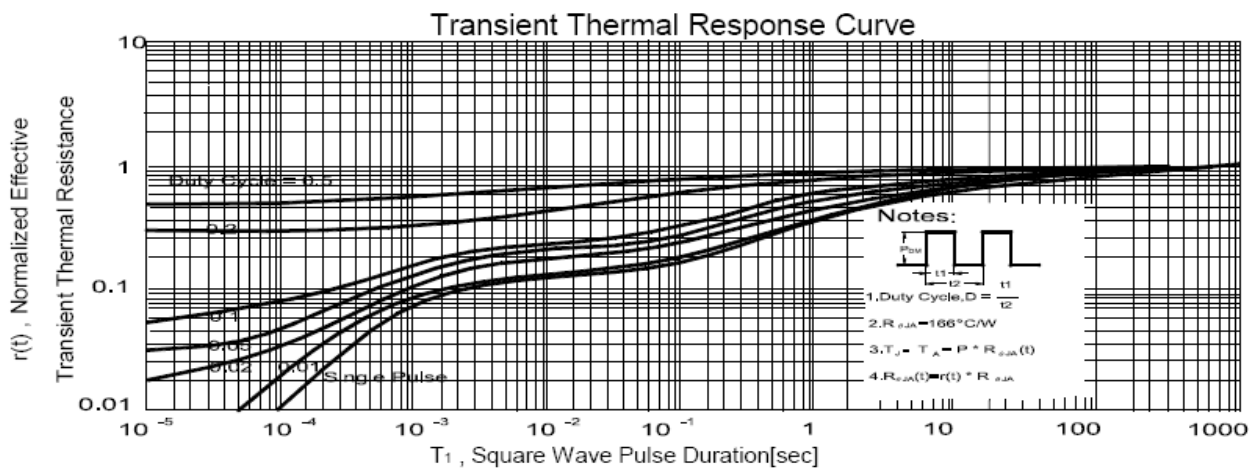
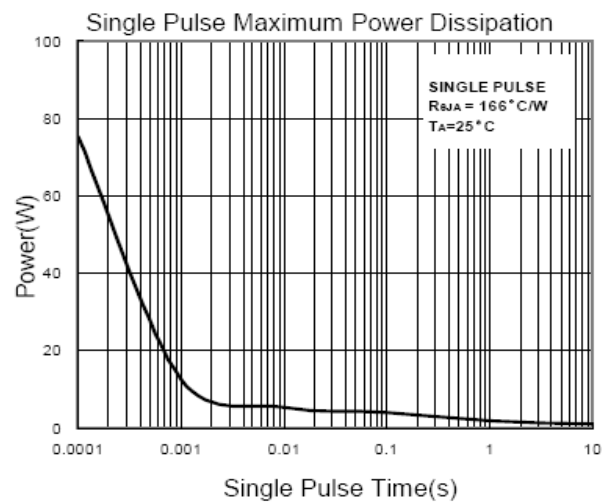
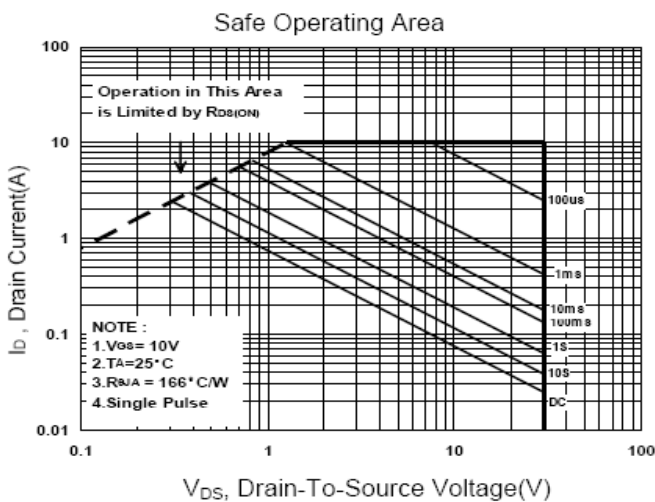
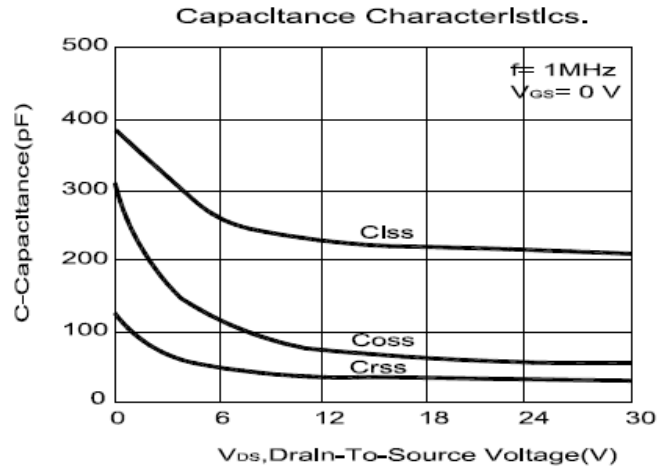
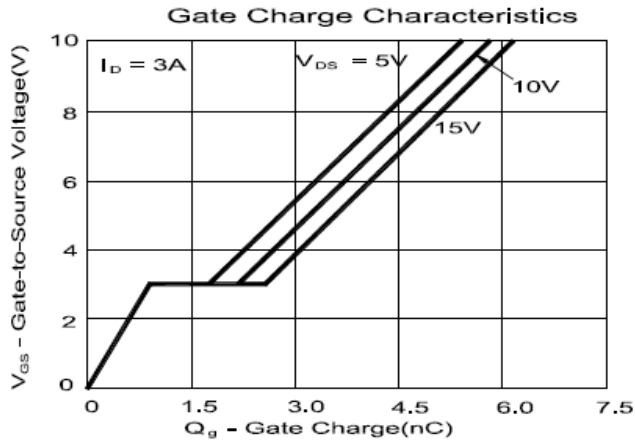


Body Diode Forward Voltage Variation with Source Current and Temperature.



P8503BMG

N-Channel Logic Level Enhancement Mode MOSFET



P8503BMG

N-Channel Logic Level Enhancement Mode MOSFET

Package Dimension

SOT-23 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A		1.05		H	0.1		0.2
B	2.4		3	I	0.3		0.6
C	1.4		1.73				
D	2.7		3.1				
E	1		1.31				
F	0		0.15				
G	0.3		0.5				

