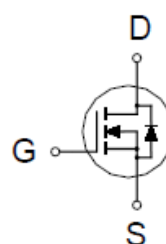
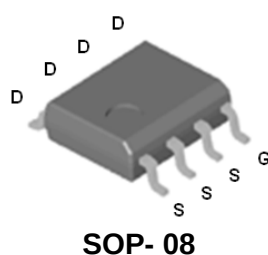


P1603BV

N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	$16m\Omega$ @ $V_{GS} = 10V$	10A



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	10	A
	$T_A = 70\text{ }^{\circ}\text{C}$		8	
Pulsed Drain Current ¹		I_{DM}	55	
Avalanche Current		I_{AS}	23	
Avalanche Energy	$L = 0.1mH$	E_{AS}	26	mJ
Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	2.6	W
	$T_A = 70\text{ }^{\circ}\text{C}$		1.6	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^{\circ}\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		25	$^{\circ}\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		50	

¹Pulse width limited by maximum junction temperature.

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ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

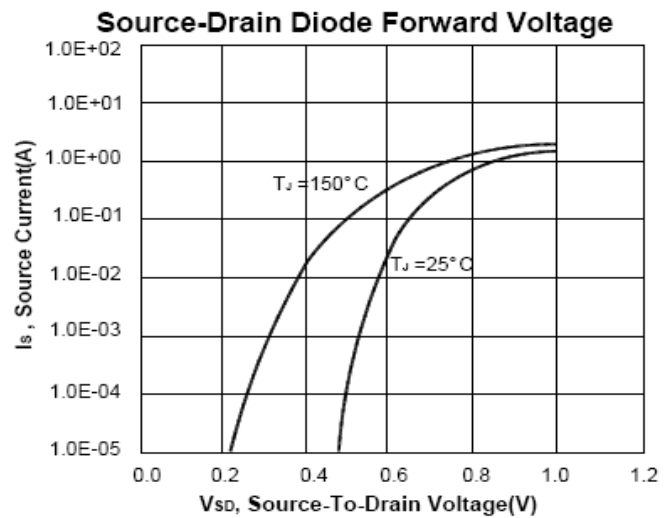
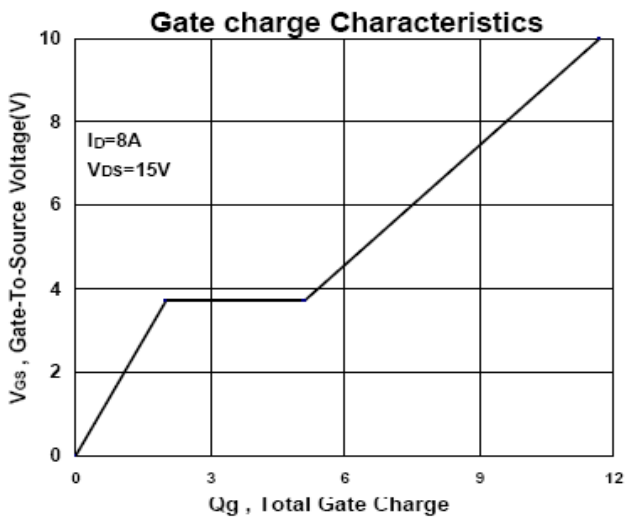
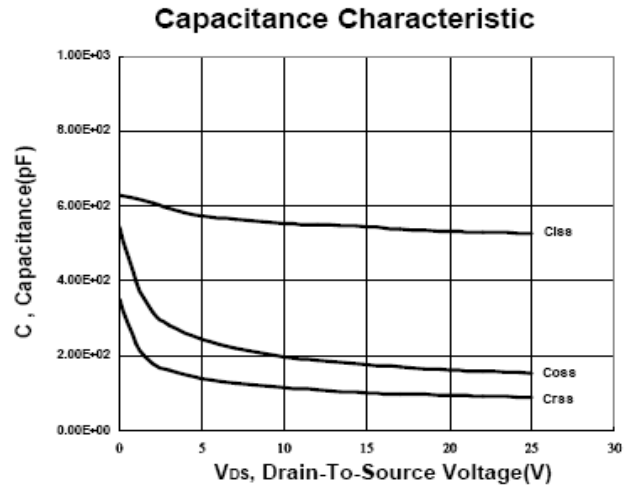
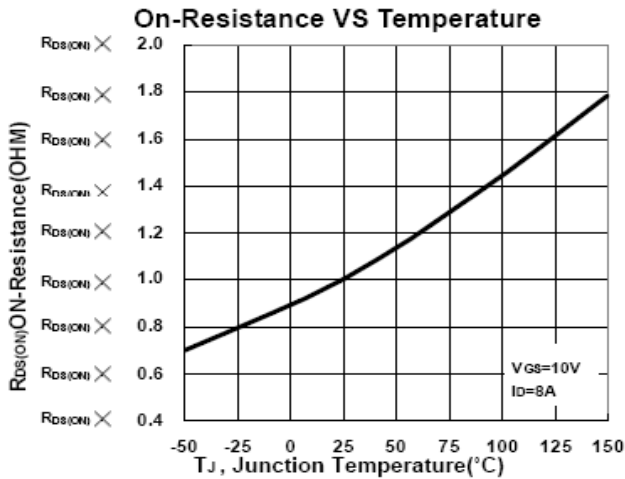
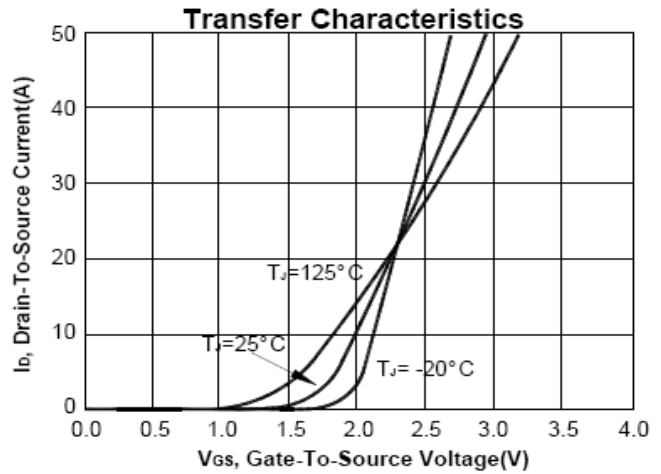
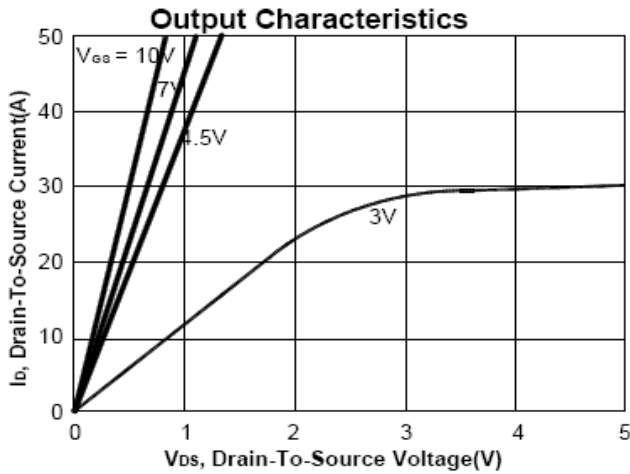
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.8	2.5	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 125^\circ C$			10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 10V, V_{GS} = 10V$	55			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6A$		19.4	25.0	mΩ
		$V_{GS} = 10V, I_D = 8A$		11.8	16.0	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 8A$		40		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		560		pF
Output Capacitance	C_{oss}			179		
Reverse Transfer Capacitance	C_{rss}			100		
Gate Resistance	R_g	$V_{GS} = 0V, f = 1MHz$		2		Ω
Total Gate Charge ²	$Q_{g(VGS = 10V)}$	$V_{DS} = 0.5V_{(BR)DSS},$ $I_D = 8A, V_{GS} = 10V$		12		nC
	$Q_{g(VGS = 4.5V)}$			5		
Gate-Source Charge ²	Q_{gs}			2.1		
Gate-Drain Charge ²	Q_{gd}			3.5		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = 15V, R_L = 1.5\Omega$ $V_{GS} = 10V, I_D \cong 10A, R_{GEN} = 6\Omega$		7		nS
Rise Time ²	t_r			29		
Turn-Off Delay Time ²	$t_{d(off)}$			45		
Fall Time ²	t_f			18		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$)						
Continuous Current	I_S				2.6	A
Forward Voltage ¹	V_{SD}	$I_F = 8A, V_{GS} = 0V$			1	V
Reverse Recovery Time	t_{rr}	$I_F = 8A, dI_F/dt = 100A / \mu S$		24		nS
Reverse Recovery Charge	Q_{rr}			29		nC

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

²Independent of operating temperature.

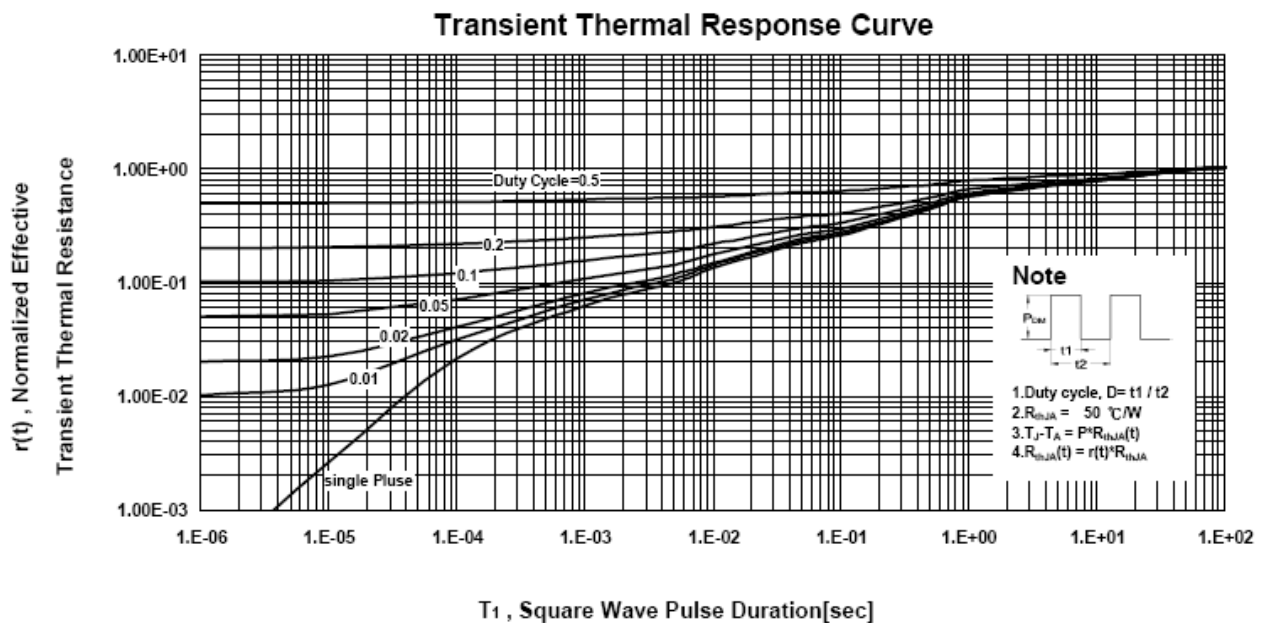
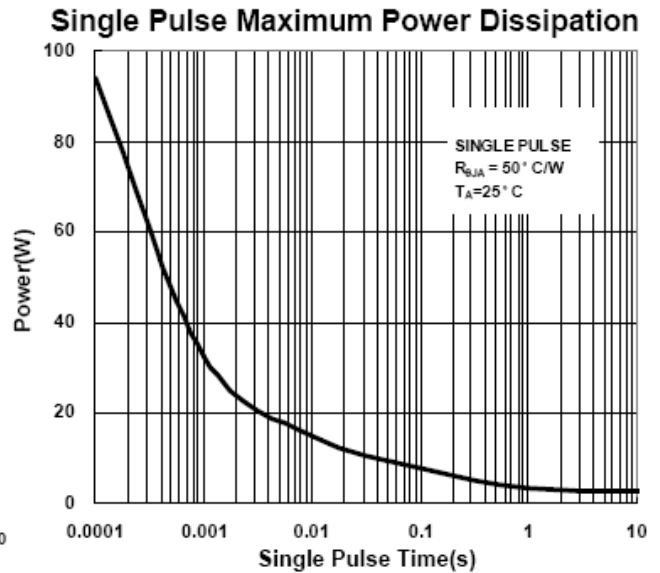
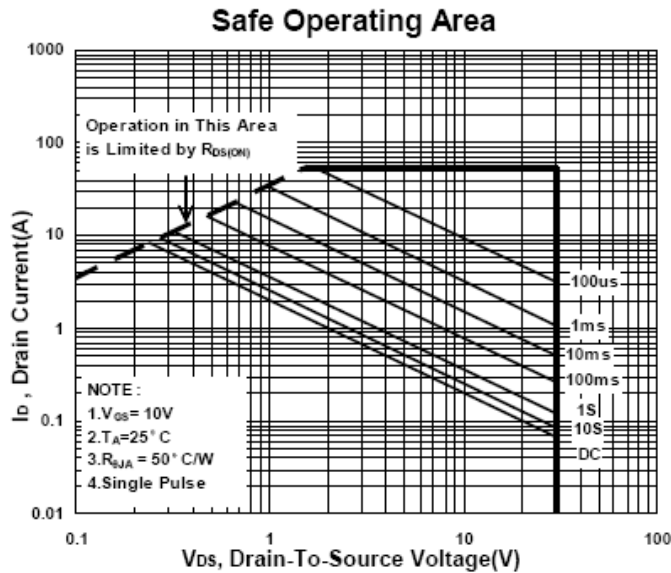
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Package Dimension

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				

