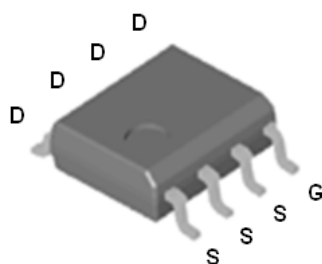


P1603BVA

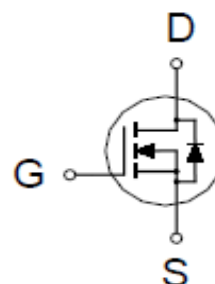
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	16m Ω @ $V_{GS} = 10V$	9.4A



SOP-8



ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^{\circ}\text{C}$ 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	9.4	A
	$T_A = 70\text{ }^{\circ}\text{C}$		7.5	
Pulsed Drain Current ¹		I_{DM}	50	
Avalanche Current		I_{AS}	15	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	11.2	mJ
Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	2.2	W
	$T_A = 70\text{ }^{\circ}\text{C}$		1.4	
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-Ambient	$R_{\theta JA}$		55	$^{\circ}\text{C} / \text{W}$
Junction-to-Case	$R_{\theta JC}$		18	

¹Pulse width limited by maximum junction temperature.

²The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^{\circ}\text{C}$.

P1603BVA

N-Channel Enhancement Mode MOSFET

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

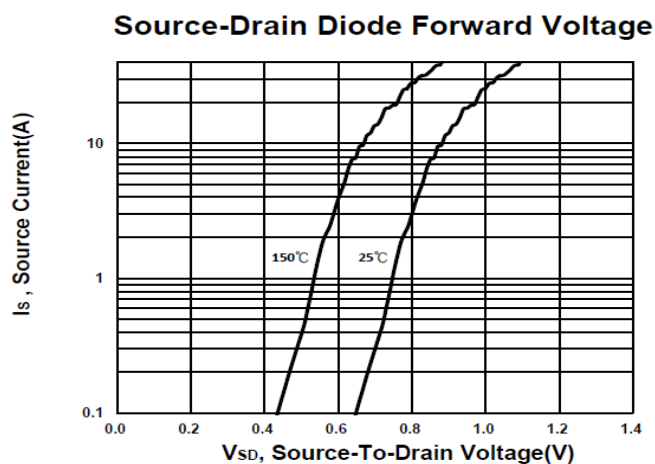
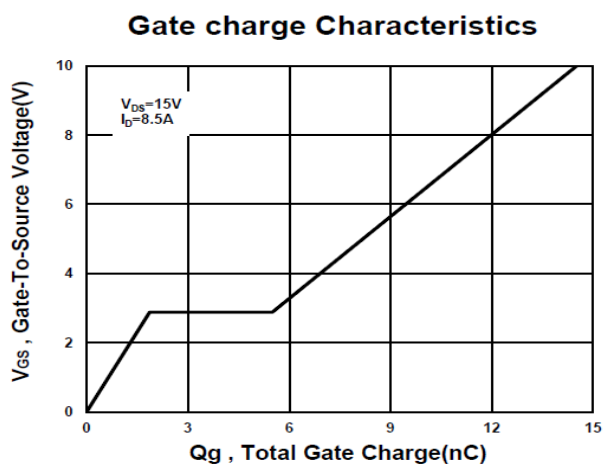
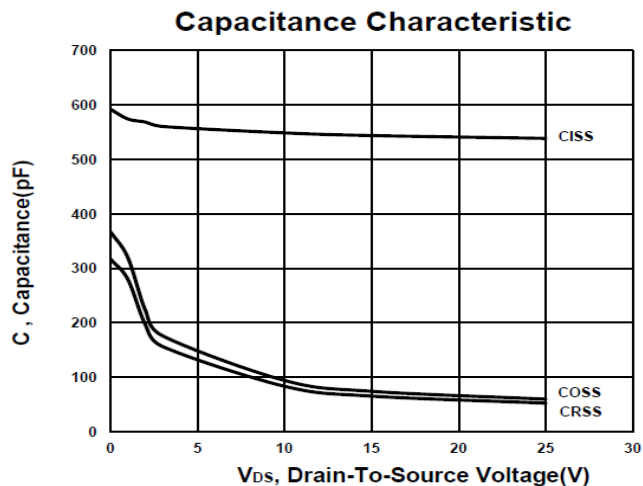
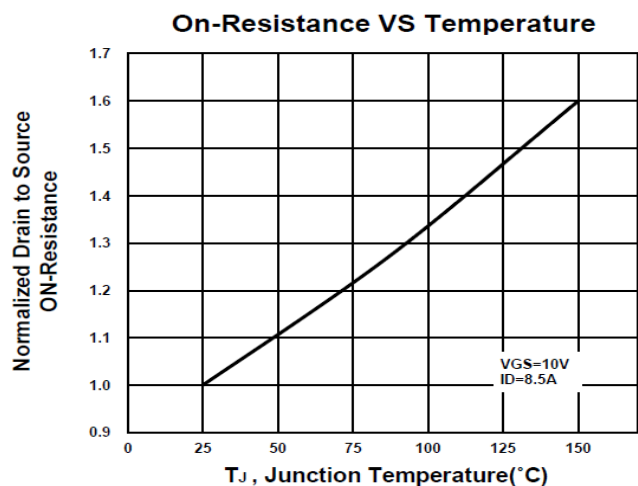
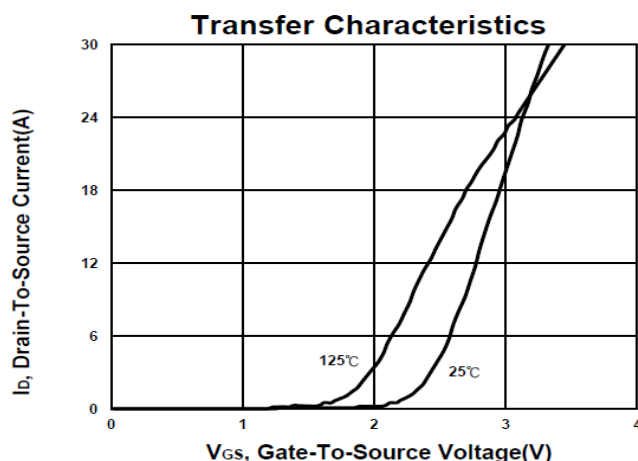
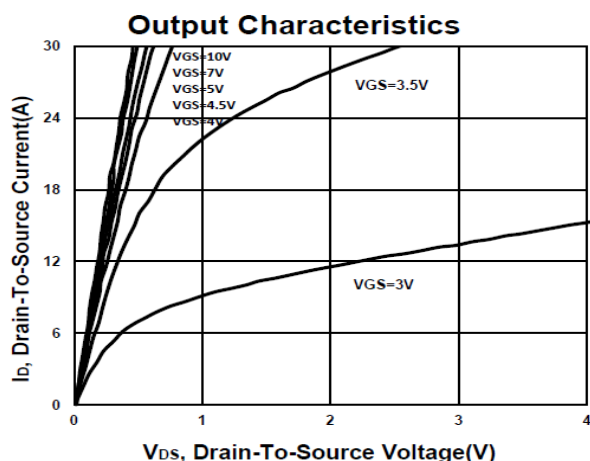
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.6	2.5	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 55\text{ }^{\circ}C$			10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6.8A$		18	25	m Ω
		$V_{GS} = 10V, I_D = 8.5A$		14.6	16	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 8.5A$		30		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		550		pF
Output Capacitance	C_{oss}			75		
Reverse Transfer Capacitance	C_{rss}			67		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		2.1		Ω
Total Gate Charge ²	$Q_g(V_{GS}=10V)$	$V_{DS} = 15V, I_D = 8.5A$		14.6		nC
	$Q_g(V_{GS}=4.5V)$			7.9		
Gate-Source Charge ²	Q_{gs}			2		
Gate-Drain Charge ²	Q_{gd}			3.9		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = 15V, I_D \cong 8.5A,$ $V_{GS} = 10V, R_{GEN} = 6\Omega$		6		nS
Rise Time ²	t_r			13		
Turn-Off Delay Time ²	$t_{d(off)}$			25		
Fall Time ²	t_f			9		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25\text{ }^{\circ}C$)						
Continuous Current	I_S				9.4	A
Forward Voltage ¹	V_{SD}	$I_F = 8.5A, V_{GS} = 0V$			1	V
Diode Reverse Recovery Time	t_{rr}	$I_F = 8.5A, di/dt = 100A / \mu S$		12.3		nS
Diode Reverse Recovery Charge	Q_{rr}			3.8		nC

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

²Independent of operating temperature.

P1603BVA

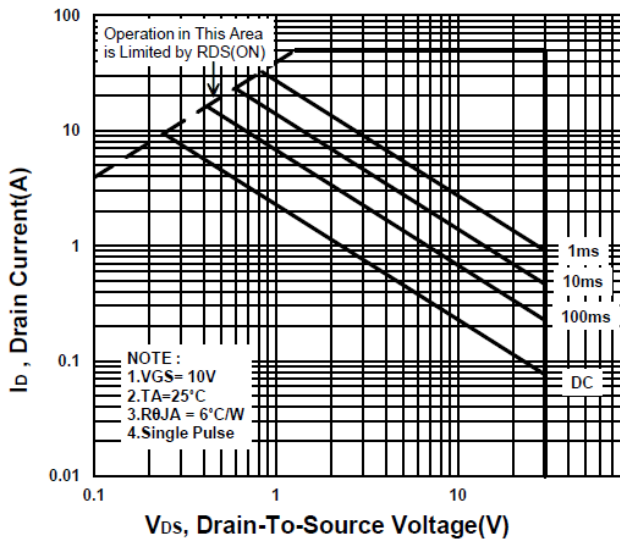
N-Channel Enhancement Mode MOSFET



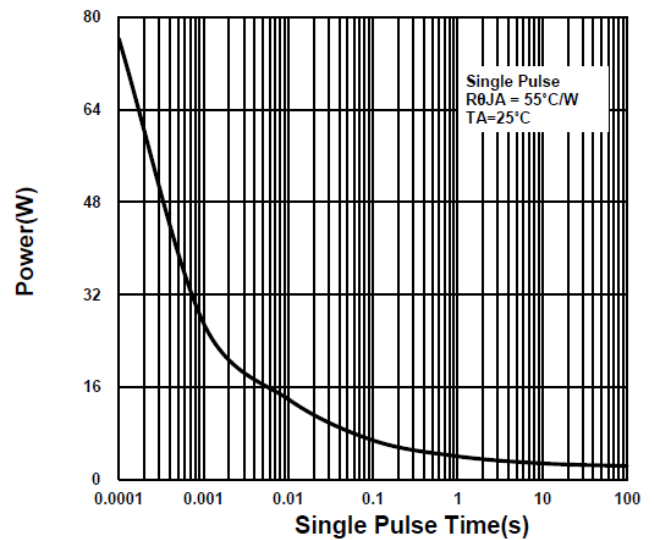
P1603BVA

N-Channel Enhancement Mode MOSFET

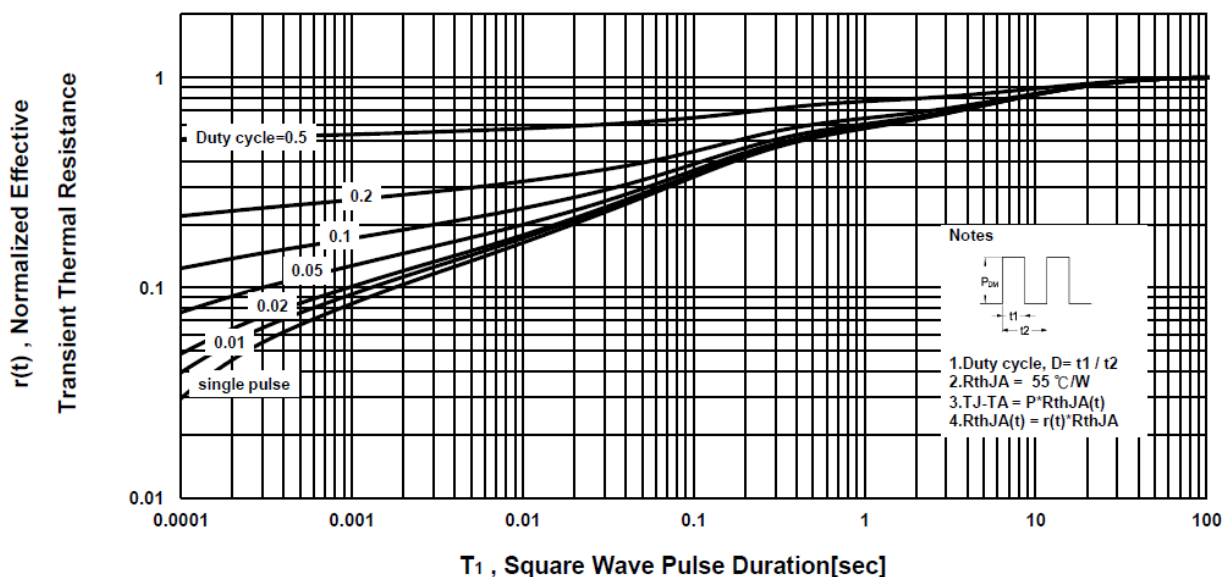
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



P1603BVA

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				

