

## GENERAL DESCRIPTION

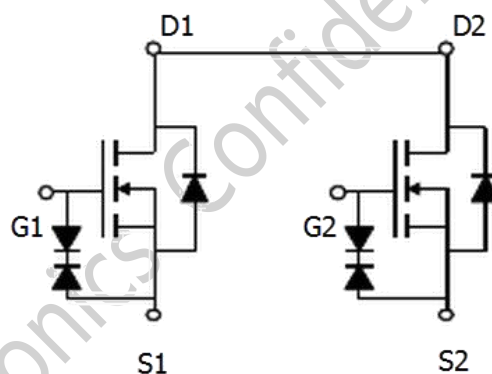
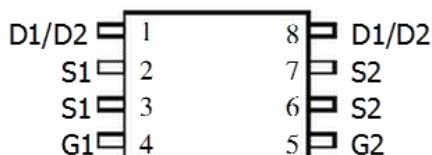
The DP8203 uses advanced trench technology to provide excellent  $R_{DS(ON)}$  and low gate charge. It is ESD protected. This device is suitable for use as a uni-directional or bi-directional load switch, facilitated by its common-drain configuration.

## PRODUCT SUMMARY

$V_{DS}$	16V
$I_D$ (at $V_{GS}=4.5V$ )	10.0A
$R_{DS(ON)}$ (at $V_{GS} = 4.5V$ )	<11m $\Omega$
$R_{DS(ON)}$ (at $V_{GS} = 3.7V$ )	< 12m $\Omega$
$R_{DS(ON)}$ (at $V_{GS} = 2.5V$ )	< 14m $\Omega$

**ESD Protected**

**TSSOP-8**  
Top View



## ABSOLUTE MAXIMUM RATINGS (TA=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	16	V
Gate-Source Voltage	$V_{GS}$	$\pm 10$	V
Continuous Drain Current	$I_D$	10	A
Pulsed Drain Current	$I_{DM}$	50	A
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 To 150	°C

## THERMAL CHARACTERISTIC

Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient	$R_{\theta JA}$	100	°C/W

**ELECTRICAL CHARACTERISTICS** (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typc	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	16	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=16V, V_{GS}=0V$	-	-	1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 4.5V, V_{DS}=0V$	-	-	$\pm 1$	$\mu A$
		$V_{GS}=\pm 10.0V, V_{DS}=0V$	-	-	$\pm 10$	$\mu A$
<b>On Characteristics <sup>a</sup></b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.7	1.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=3.0A$	5.0	7.0	11.0	m $\Omega$
		$V_{GS}=3.7V, I_D=3.0A$	5.5	7.5	12.0	m $\Omega$
		$V_{GS}=2.5V, I_D=2.0A$	6.5	8.5	14.0	m $\Omega$
Forward Transconductance	$g_{FS}$	$V_{DS}=5V, I_D=7A$	9	36	-	S
<b>Dynamic Characteristics <sup>b</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=10V,$ $V_{GS}=0V,$ $F=1.0MHz$	-	2230	-	pF
Output Capacitance	$C_{oss}$		-	370	-	pF
Reverse Transfer Capacitance	$C_{rss}$		-	280	-	pF
<b>Switching Characteristics <sup>b</sup></b>						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=10V,$ $R_L=1.35\Omega$ $V_{GS}=5.0V,$ $R_{GEN}=3\Omega,$	-	2.7	-	nS
Turn-on Rise Time	$t_r$		-	6.9	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	45	-	nS
Turn-Off Fall Time	$t_f$		-	13	-	nS
Total Gate Charge	$Q_g$	$V_{DS}=10V,$ $I_D=7A,$ $V_{GS}=4.5V$	-	21	-	nC
Gate-Source Charge	$Q_{gs}$		-	2.3	-	nC
Gate-Drain Charge	$Q_{gd}$		-	5.5	-	nC
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=1.0A$	-	-	1.0	V
Diode Forward Current <sup>a</sup>	$I_S$	-	-	-	5.5	A

**Notes**

 a.Pulse Test:Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 0.5\%$ .

b.Guaranteed by design, not subject to production testing.



# TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

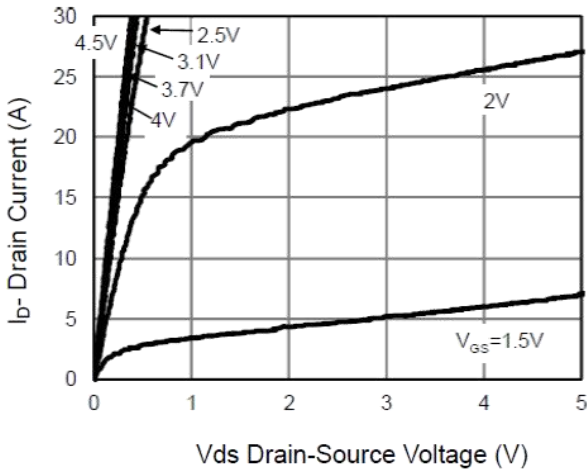


Figure 1 Output Characteristics

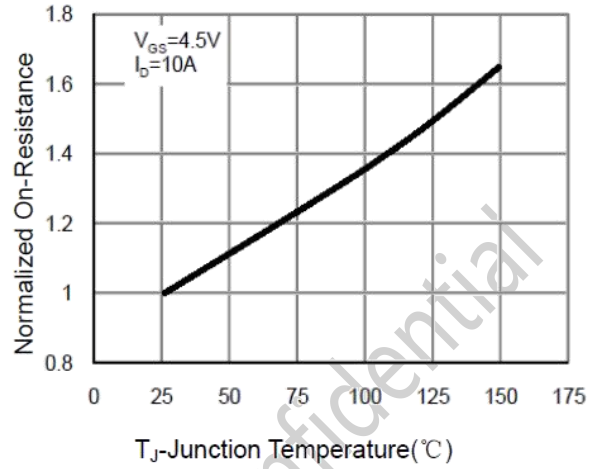


Figure 4 Rdson-Junction Temperature

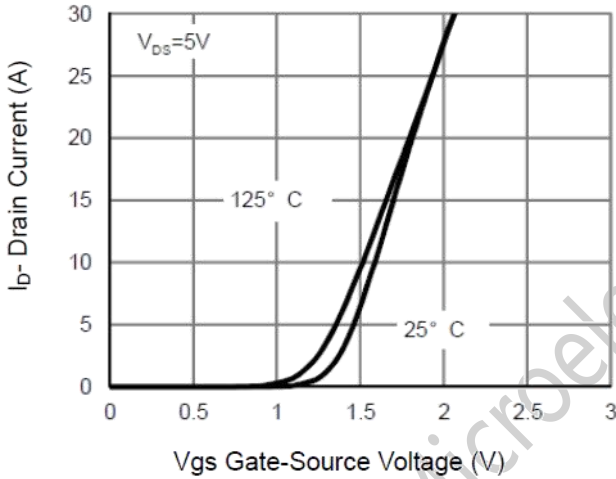


Figure 2 Transfer Characteristics

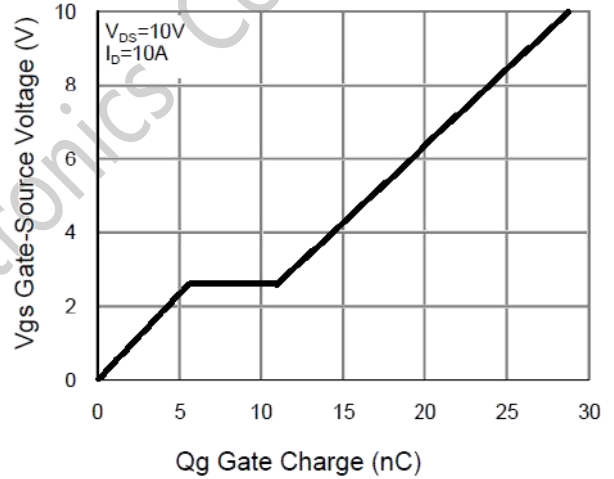


Figure 5 Gate Charge

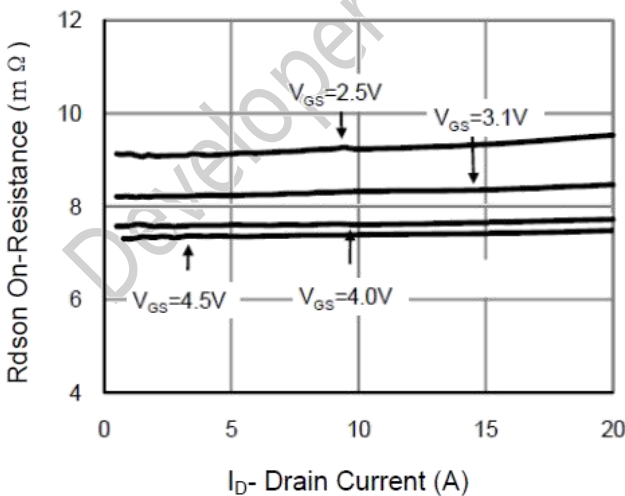


Figure 3 Rdson- Drain Current

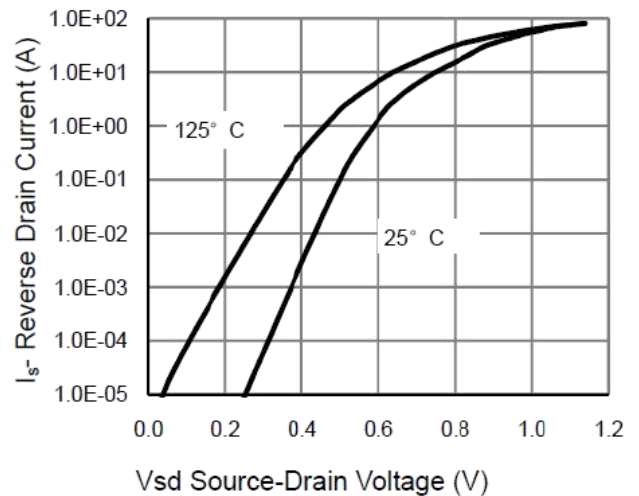


Figure 6 Source- Drain Diode Forward

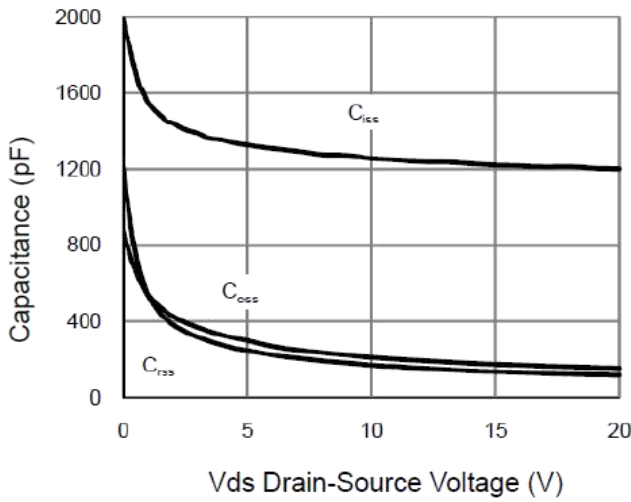


Figure 7 Capacitance vs Vds

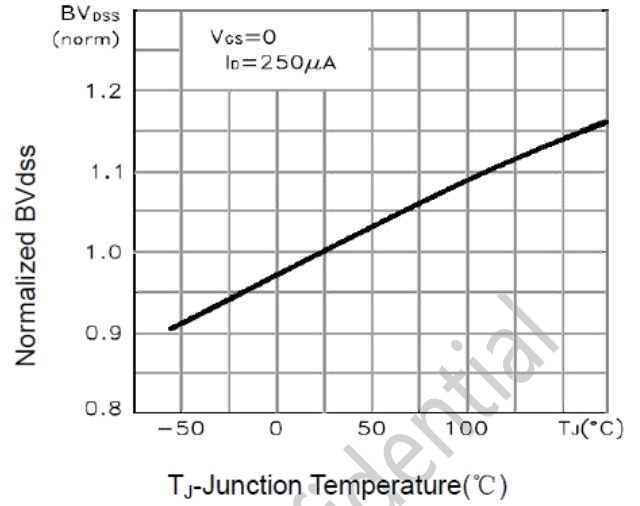


Figure 9 BV<sub>DSS</sub> vs Junction Temperature

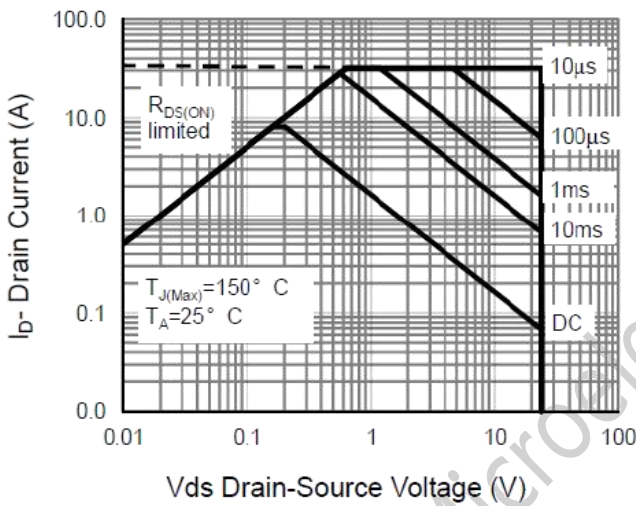


Figure 8 Safe Operation Area

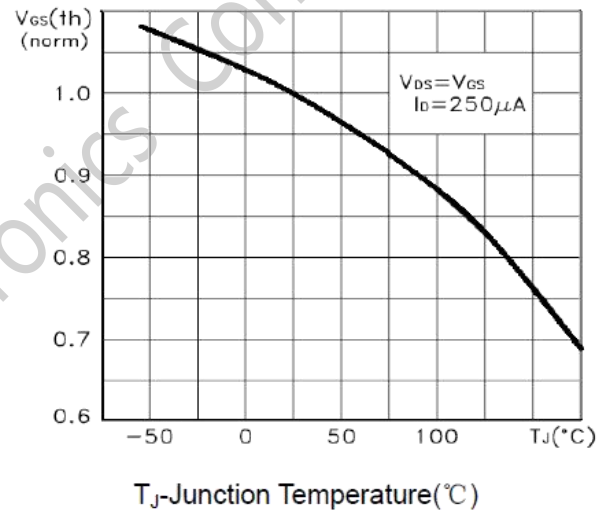


Figure 10 V<sub>GS(th)</sub> vs Junction Temperature

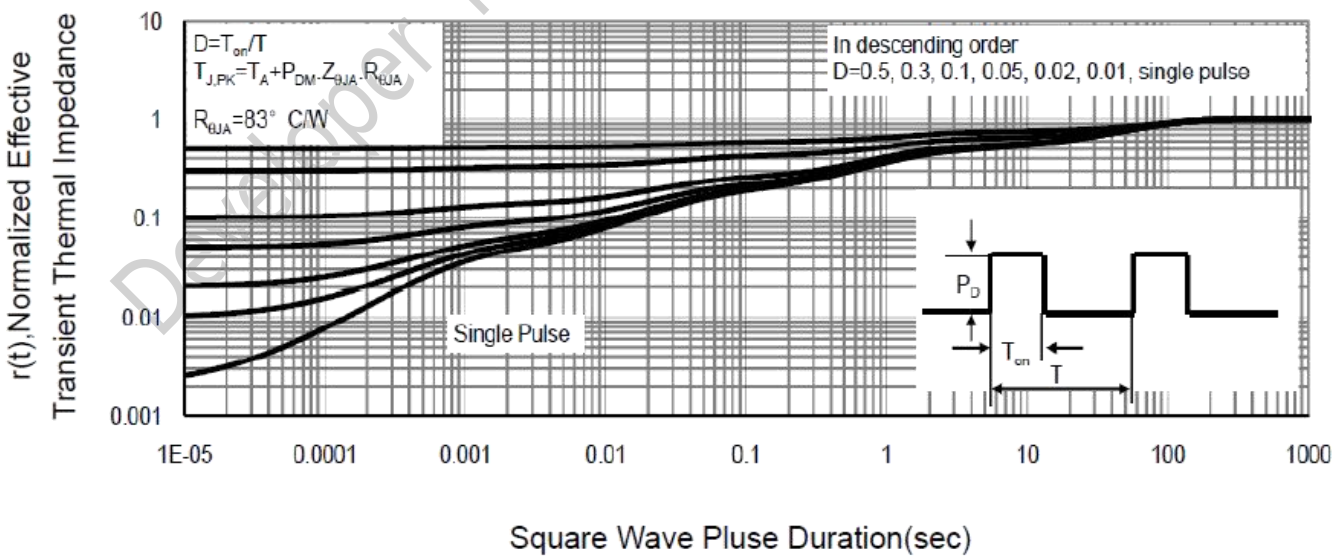
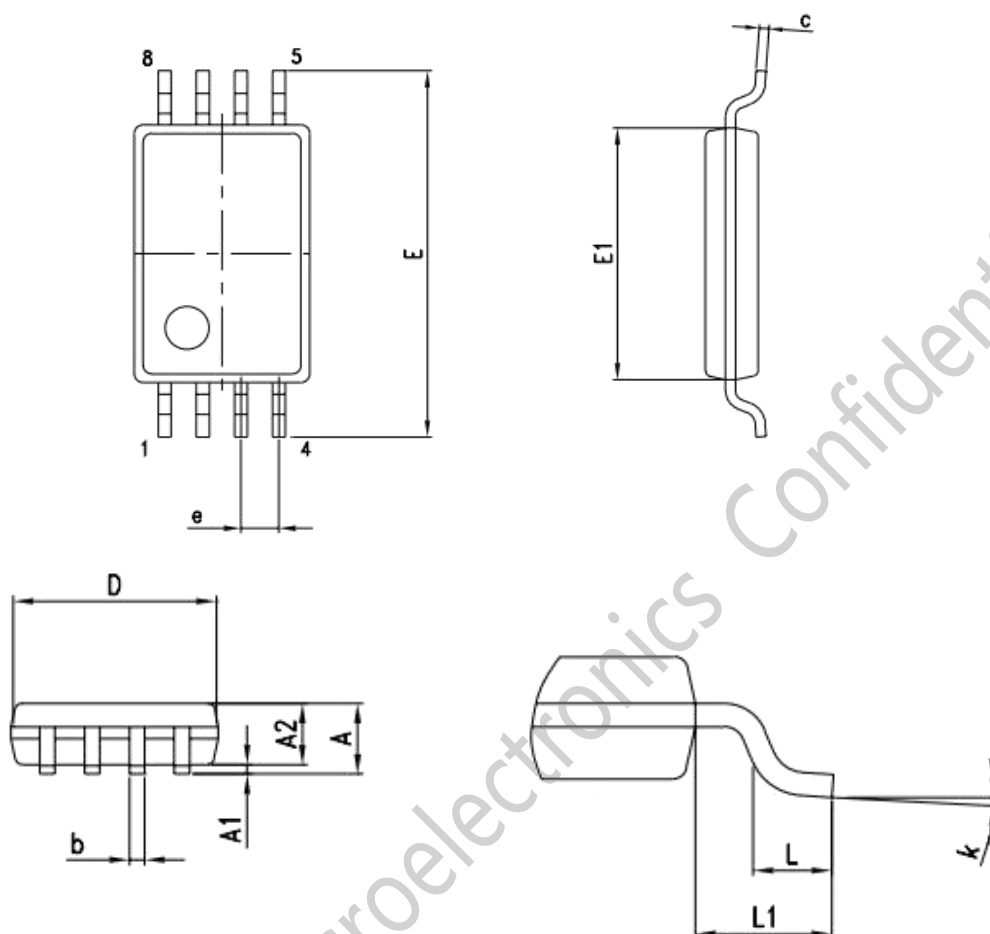


Figure 11 Normalized Maximum Transient Thermal Impedance



## PACKAGE OUTLINE DIMENSIONS

TSSOP-8



DIM.	mm.			inch.		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	1.05		1.20	0.041		0.047
A1	0.05		0.15	0.002		0.006
A2	0.80		1.05	0.032		0.041
b	0.19		0.30	0.008		0.012
c	0.090		0.20	0.003		0.007
D	2.90		3.10	0.114		0.122
E	6.20		6.60	0.240		0.260
E1	4.30		4.50	0.170		0.177
e		0.65			0.025	
L	0.45		0.75	0.018		0.030
L1		1.00			0.039	
k	0°		8°	0.192		0.208

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