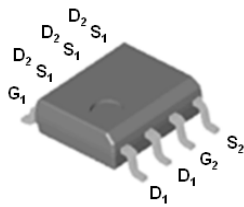


# PD1503YVS

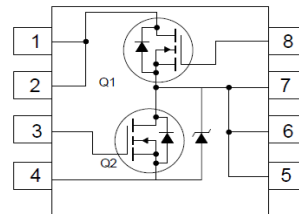
## Dual N-Channel Enhancement Mode MOSFET

### PRODUCT SUMMARY

	$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
Q2	30V	15.8mΩ @ $V_{GS} = 10V$	9A
Q1	30V	21.0mΩ @ $V_{GS} = 10V$	8A



SOP- 08



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

PARAMETERS/TEST CONDITIONS		SYMBOL	Q2	Q1	UNITS
Drain-Source Voltage		$V_{DS}$	30	30	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	$\pm 20$	
Continuous Drain Current <sup>2</sup>	$T_A = 25\text{ }^\circ\text{C}$	$I_D$	9	8	A
	$T_A = 70\text{ }^\circ\text{C}$		7	6	
Pulsed Drain Current <sup>1, 2</sup>		$I_{DM}$	35	30	
Avalanche Current		$I_{AS}$	29	21	
Avalanche Energy	$L = 0.1\text{mH}$	$E_{AS}$	43	23	mJ
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	$P_D$	2		W
	$T_A = 70\text{ }^\circ\text{C}$		1.28		
Operating Junction & Storage Temperature Range		$T_J, T_{STG}$	<b>-55 to 150</b>		$^\circ\text{C}$

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

PARAMETERS/TEST CONDITIONS	SYMBOL	Schottky	UNITS
Reverse Current	$V_R = 25V$	$I_R$	0.05 mA
Forward Voltage	$I_F = 1A$	$V_F$	0.45 V

### THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		62.5	$^\circ\text{C} / W$

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Limited only by maximum temperature allowed

# PD1503YVS

## Dual N-Channel Enhancement Mode MOSFET

### Q2 ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1	1.7	3	
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V			1	μA
		V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 125 °C			10	
On-State Drain Current <sup>1</sup>	I <sub>D(ON)</sub>	V <sub>DS</sub> = 5V, V <sub>GS</sub> = 10V	35			A
Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 7A		14.2	20	mΩ
		V <sub>GS</sub> = 10V, I <sub>D</sub> = 9A		10.5	15.8	
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 9A		25		S
<b>DYNAMIC</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 15V, f = 1MHz		1040		pF
Output Capacitance	C <sub>oss</sub>			295		
Reverse Transfer Capacitance	C <sub>rss</sub>			139		
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 0V, f = 1MHz		1.5		Ω
Total Gate Charge <sup>2</sup>	Q <sub>g</sub>	V <sub>DS</sub> = 0.5V <sub>(BR)DSS</sub> , I <sub>D</sub> = 9A, V <sub>GS</sub> = 10V		20		nC
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>			3.8		
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>			4.3		
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>	V <sub>DD</sub> = 15V, I <sub>D</sub> = 1A, V <sub>GS</sub> = 10V, R <sub>G</sub> = 6Ω		18		nS
Rise Time <sup>2</sup>	t <sub>r</sub>			12		
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>			40		
Fall Time <sup>2</sup>	t <sub>f</sub>			8		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)</b>						
Continuous Current	I <sub>S</sub>				2.8	V
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = 9A, V <sub>GS</sub> = 0V			0.7	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 9A, dI <sub>F</sub> /dt = 100A / μS		15		nS
Reverse Recovery Charge	Q <sub>rr</sub>				6	

<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

<sup>2</sup>Independent of operating temperature.

# PD1503YVS

## Dual N-Channel Enhancement Mode MOSFET

### Q1 ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1	2	3	V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V			1	μA
		V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 125 °C			10	
On-State Drain Current <sup>1</sup>	I <sub>D(ON)</sub>	V <sub>DS</sub> = 5V, V <sub>GS</sub> = 10V	30			A
Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 6A		25.6	32	mΩ
		V <sub>GS</sub> = 10V, I <sub>D</sub> = 7A		15.8	21	
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 7A		15		S
<b>DYNAMIC</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 15V, f = 1MHz		560		pF
Output Capacitance	C <sub>oss</sub>			160		
Reverse Transfer Capacitance	C <sub>rss</sub>			84		
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 0V, f = 1MHz		2		Ω
Total Gate Charge <sup>2</sup>	Q <sub>g</sub>	V <sub>DS</sub> = 0.5V <sub>(BR)DSS</sub> , I <sub>D</sub> = 7A, V <sub>GS</sub> = 10V		11		nC
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>			2.5		
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>			3.1		
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>	V <sub>DD</sub> = 15V, I <sub>D</sub> = 1A, V <sub>GS</sub> = 10V, R <sub>G</sub> = 6Ω		19		nS
Rise Time <sup>2</sup>	t <sub>r</sub>			8		
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>			39		
Fall Time <sup>2</sup>	t <sub>f</sub>			6		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)</b>						
Continuous Current	I <sub>S</sub>				2	V
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = 7A, V <sub>GS</sub> = 0V			1	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 7A, dI <sub>F</sub> /dt = 100A / μS		20		nS
Reverse Recovery Charge	Q <sub>rr</sub>				12	

<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

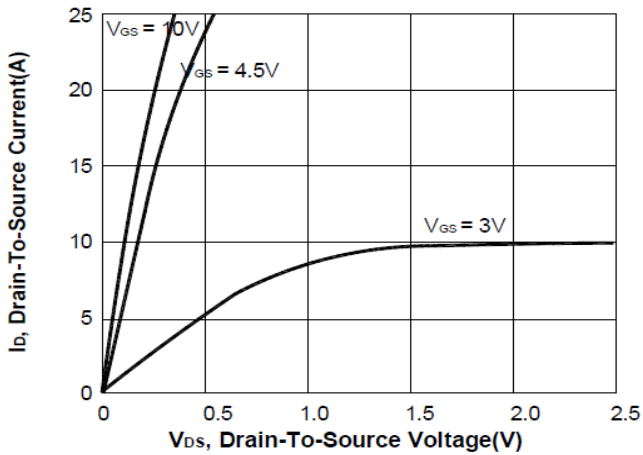
<sup>2</sup>Independent of operating temperature.

# PD1503YVS

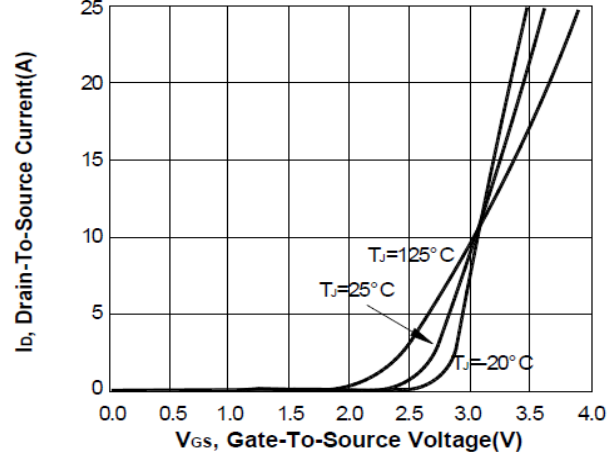
## Dual N-Channel Enhancement Mode MOSFET

### Typical Characteristics: Q2

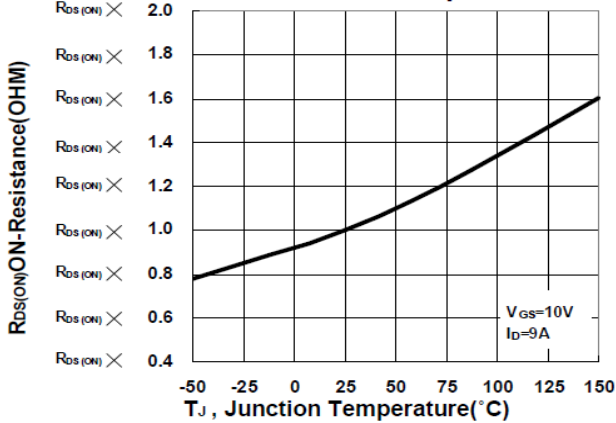
**Output Characteristics**



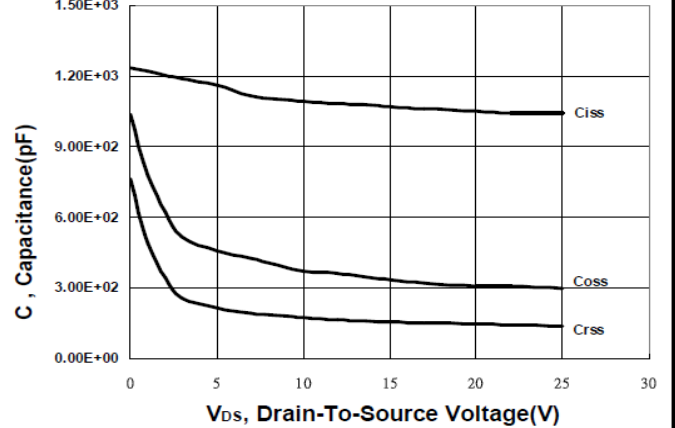
**Transfer Characteristics**



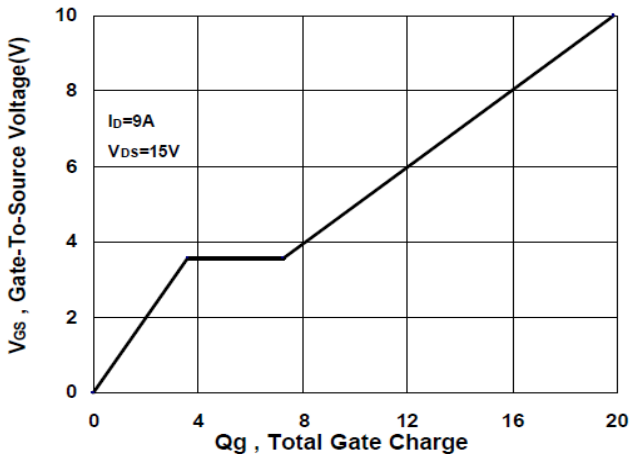
**On-Resistance VS Temperature**



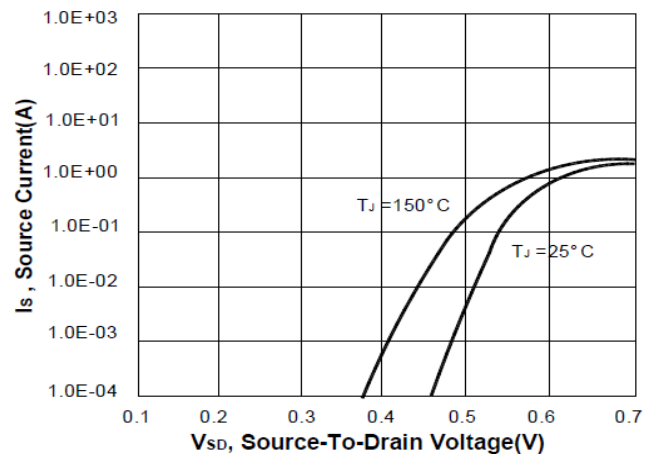
**Capacitance Characteristic**



**Gate charge Characteristics**

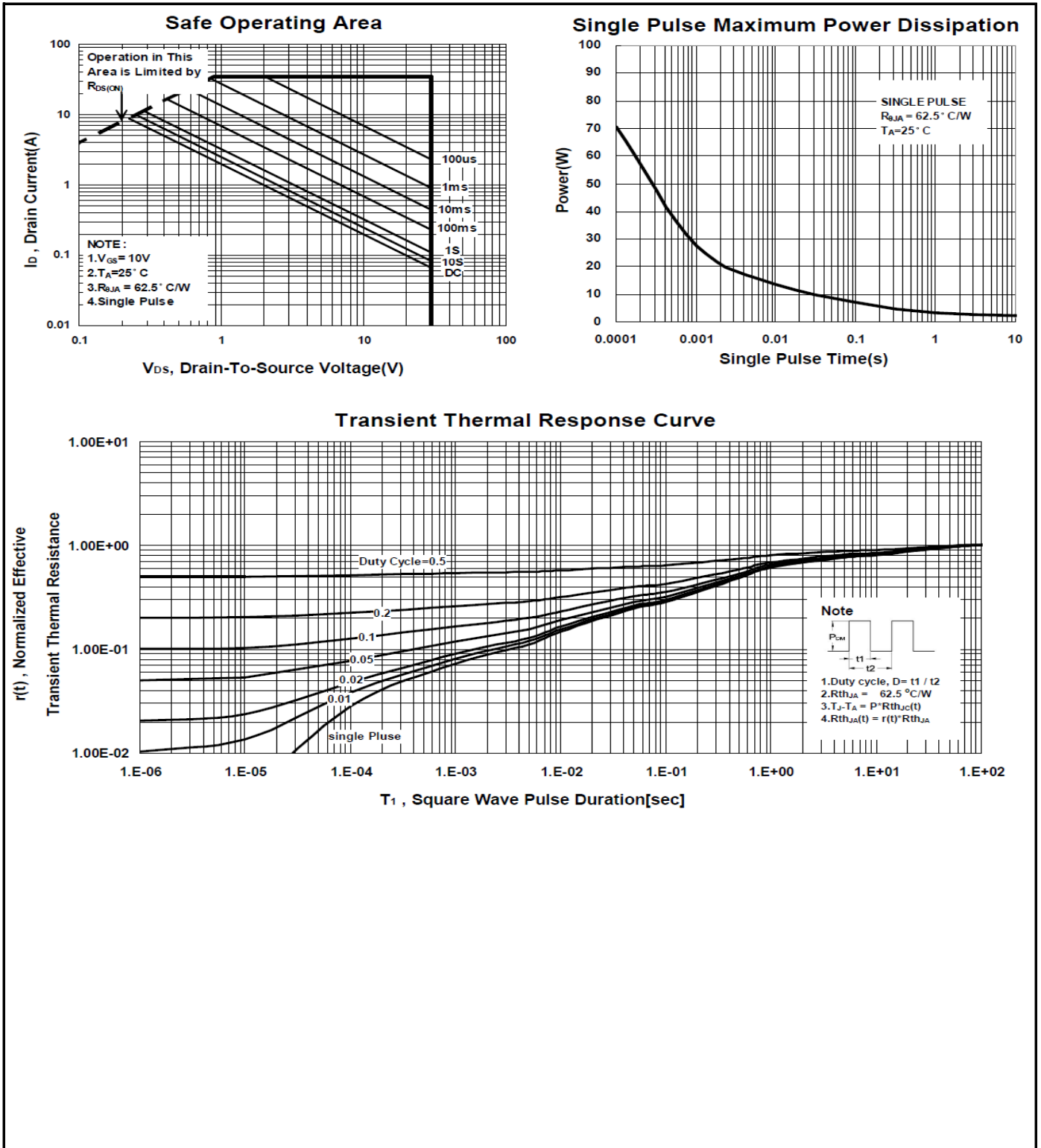


**Source-Drain Diode Forward Voltage**



# PD1503YVS

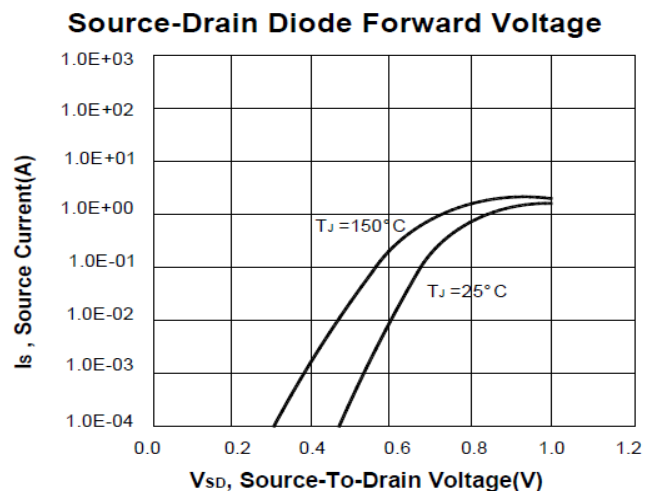
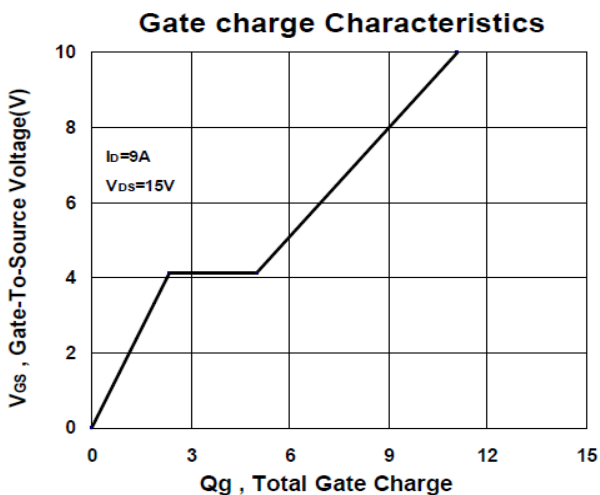
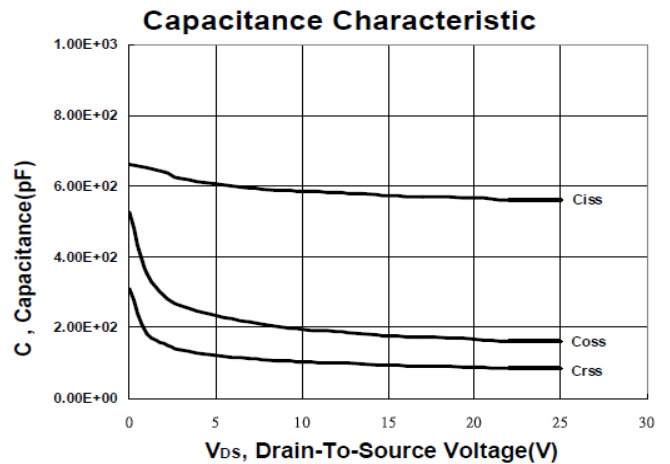
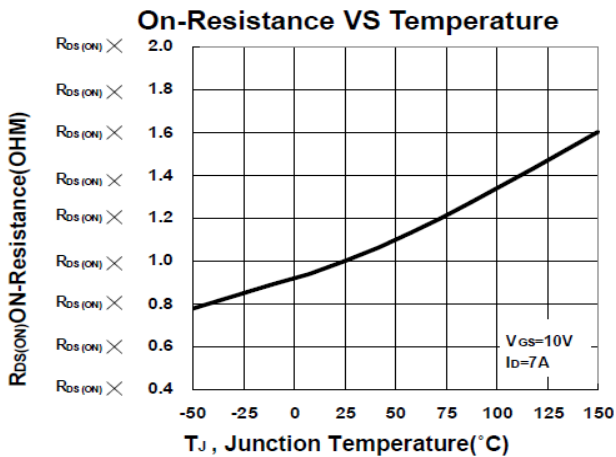
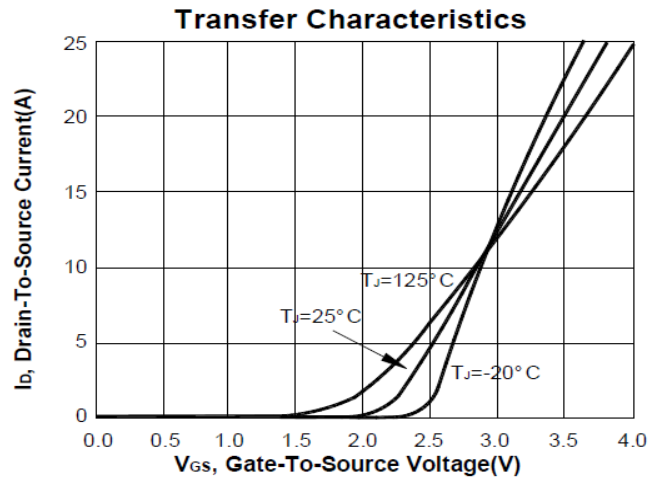
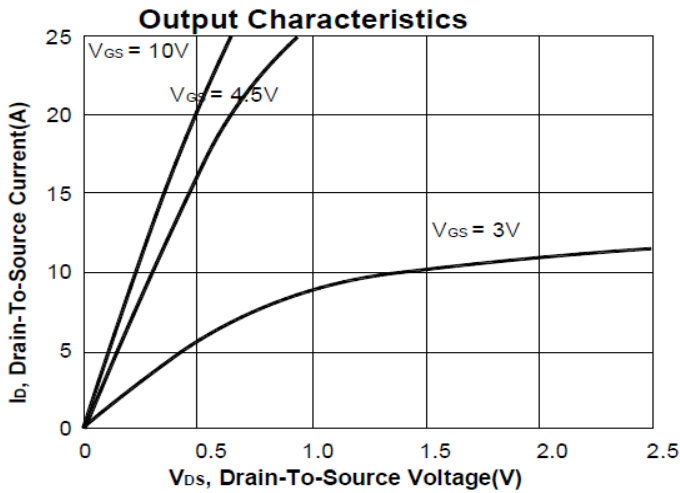
## Dual N-Channel Enhancement Mode MOSFET



# PD1503YVS

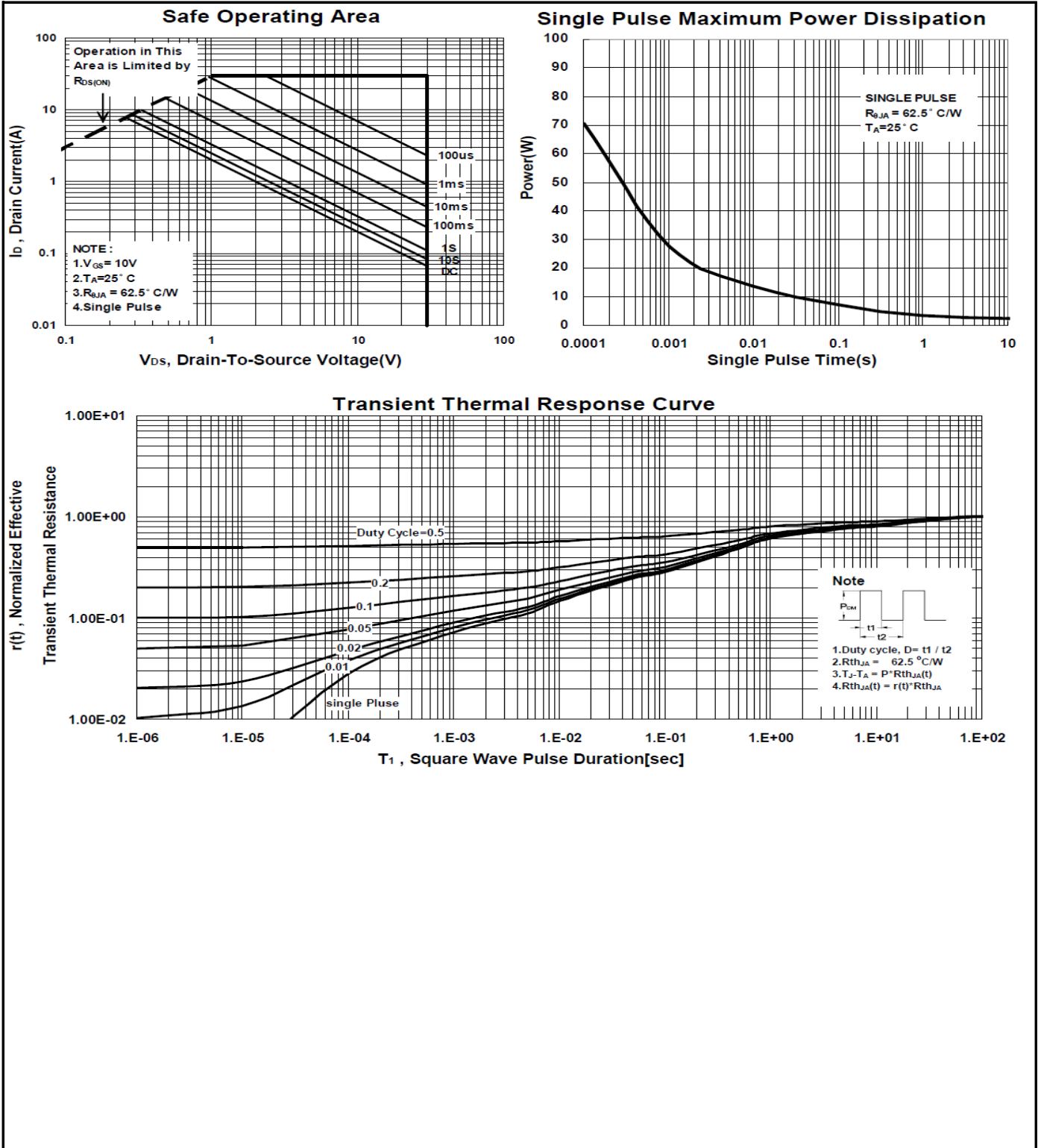
## Dual N-Channel Enhancement Mode MOSFET

### Typical Characteristics: Q1



# PD1503YVS

## Dual N-Channel Enhancement Mode MOSFET



# PD1503YVS

## Dual 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				

