

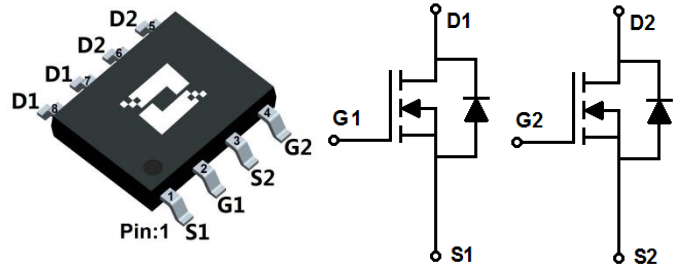
**Features**

- Low  $R_{DS(on)}$  @  $V_{GS}=10V$
- 5V Logic Level Control
- N Channel SOP8 Dual Package
- Pb-Free, RoHS Compliant

$V_{(BR)DSS}$	$R_{DS(ON)}$ Typ	$I_D$ Max
100V	68m $\Omega$ @10V	10A
	96m $\Omega$ @4.5V	

**Applications**

- Load Switch
- Switching Circuits
- High Speed line Driver
- Power management


**SOP8**
**Order Information**

Product	Package	Marking	Packing
DWS075M10	SOP8	075M10	4000PCS/Reel

**Absolute Maximum Ratings**

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Symbol	Parameter	Rating	Unit	
<b>Common Ratings (<math>T_A=25^\circ\text{C}</math> Unless Otherwise Noted)</b>				
$V_{GS}$	Gate-Source Voltage	$\pm 25$	V	
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	100	V	
$T_J$	Maximum Junction Temperature	150	$^\circ\text{C}$	
$T_{STG}$	Storage Temperature Range	-50 to 150	$^\circ\text{C}$	
<b>Mounted on Large Heat Sink</b>				
$I_{DM}$	Pulse Drain Current Tested <sup>①</sup>	$T_A=25^\circ\text{C}$	22	A
$I_D$	Continuous Drain Current	$T_A=25^\circ\text{C}$	10	A
		$T_A=70^\circ\text{C}$	8	
$P_D$	Maximum Power Dissipation	$T_A=25^\circ\text{C}$	25	W
EAS	Avalanche energy, single pulsed <sup>②</sup>		31.25	mJ
$R_{\theta JC}$	Thermal Resistance Junction-Ambient		3	$^\circ\text{C/W}$

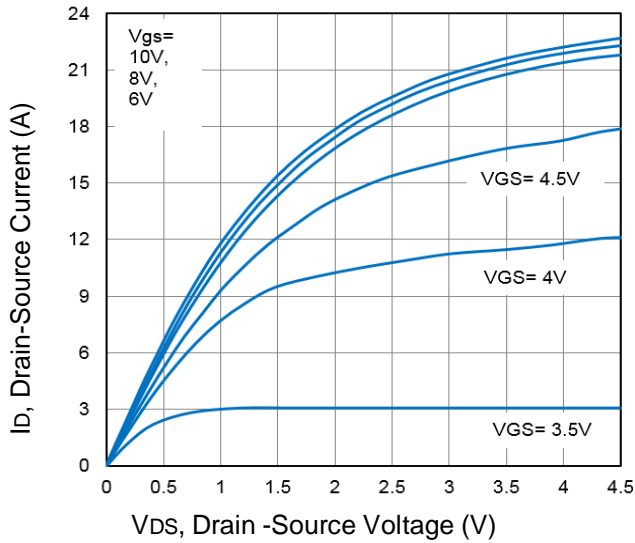
Symbol	Parameter	Condition	Min	Typ	Max	Unit
<b>Static Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V I <sub>D</sub> =250μA	100	–	–	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current(T <sub>A</sub> =25°C)	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V	–	–	1	μA
	Zero Gate Voltage Drain Current(T <sub>A</sub> =125°C)	V <sub>DS</sub> =80V, V <sub>GS</sub> =0V	–	–	100	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±25V, V <sub>DS</sub> =0V	–	–	±100	nA
V <sub>GS(TH)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.5	2.2	3.0	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance <sup>②</sup>	V <sub>GS</sub> =10, I <sub>D</sub> =4A	–	68	95	mΩ
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance <sup>②</sup>	V <sub>GS</sub> =7, I <sub>D</sub> =4A	–	70	100	mΩ
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance <sup>②</sup>	V <sub>GS</sub> =4.5, I <sub>D</sub> =3A	–	96	125	mΩ
<b>Dynamic Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V, f=1MHz	–	851	–	pF
C <sub>oss</sub>	Output Capacitance		–	31	–	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		–	27	–	pF
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =50V I <sub>D</sub> =5A, V <sub>GS</sub> =10V	–	21	–	nC
Q <sub>gs</sub>	Gate Source Charge		–	3.3	–	nC
Q <sub>gd</sub>	Gate Drain Charge		–	6.1	–	nC
<b>Switching Characteristics</b>						
t <sub>d(on)</sub>	Turn on Delay Time	V <sub>DD</sub> =50V, I <sub>D</sub> =1A, R <sub>G</sub> =3.3Ω, V <sub>GS</sub> =10V	–	4.5	–	ns
t <sub>r</sub>	Turn on Rise Time		–	6.4	–	ns
t <sub>d(off)</sub>	Turn Off Delay Time		–	19	–	ns
t <sub>f</sub>	Turn Off Fall Time		–	3.6	–	ns
<b>Source Drain Diode Characteristics</b>						
I <sub>SD</sub>	Source drain current(Body Diode)	T <sub>A</sub> =25°C	–	–	10	A
V <sub>SD</sub>	Forward on voltage <sup>②</sup>	T <sub>J</sub> =25°C, I <sub>SD</sub> =2A, V <sub>GS</sub> =0V	–	–	1.2	V

Notes: ① Pulse width limited by maximum allowable junction temperature

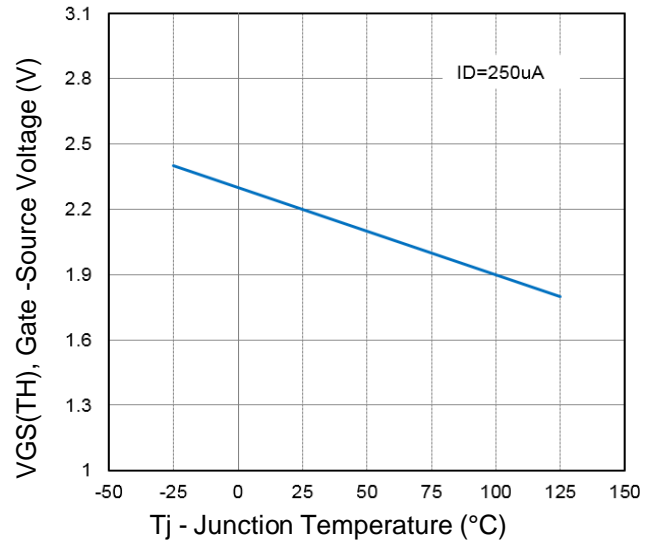
② Limited by T<sub>Jmax</sub>, starting T<sub>J</sub> = 25°C, L = 0.1mH, R<sub>G</sub> = 25Ω, I<sub>AS</sub> = 25A, V<sub>GS</sub> = 10V. Part not recommended for use above this value

③ Pulse width ≤ 300μs; duty cycle ≤ 2%.

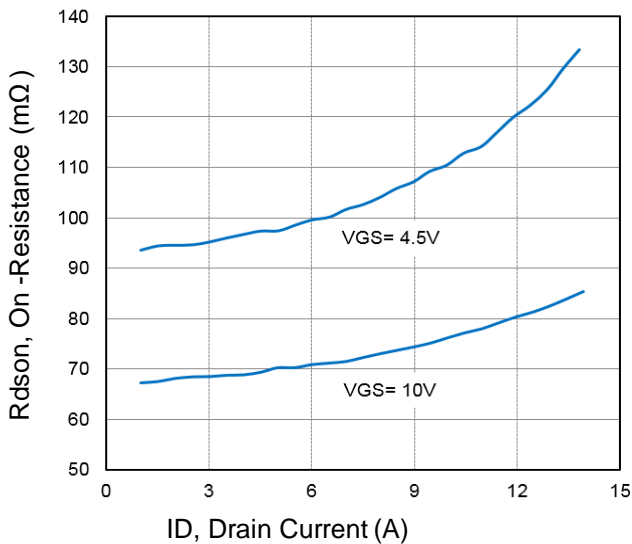
**Typical Characteristics**



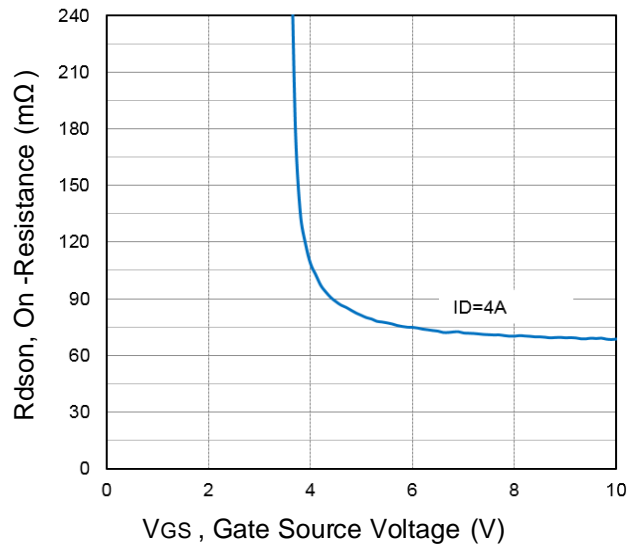
**Fig1.** Typical Output Characteristics



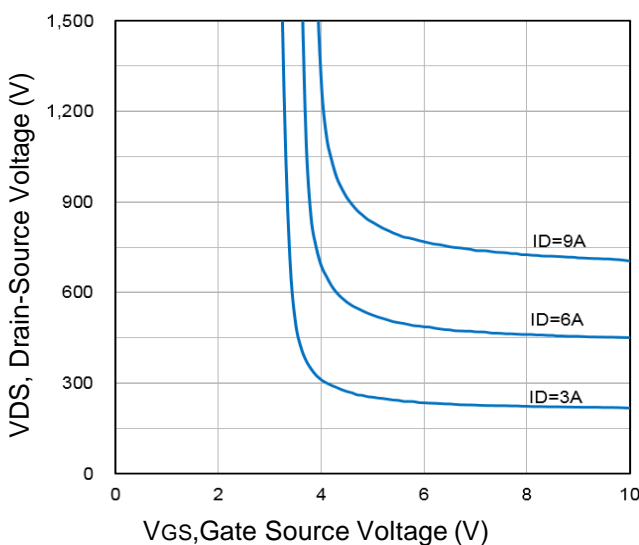
**Fig2.** Normalized Threshold Voltage Vs. Temperature



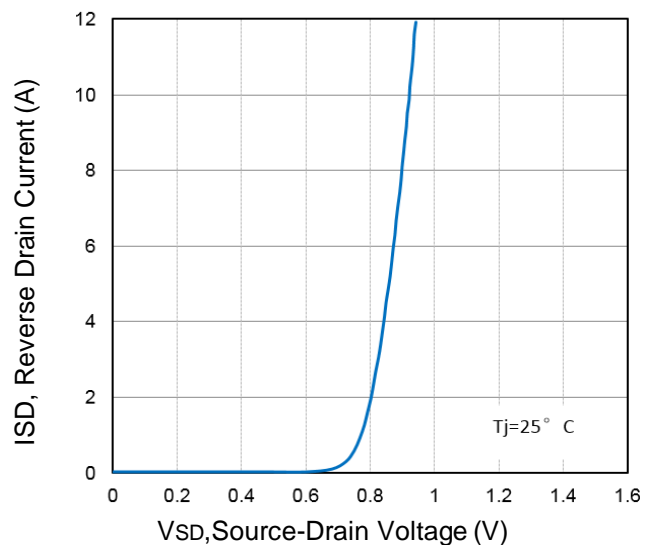
**Fig3.** On-Resistance vs. Drain Current and Gate



**Fig4.** On-Resistance vs. Gate Source Voltage

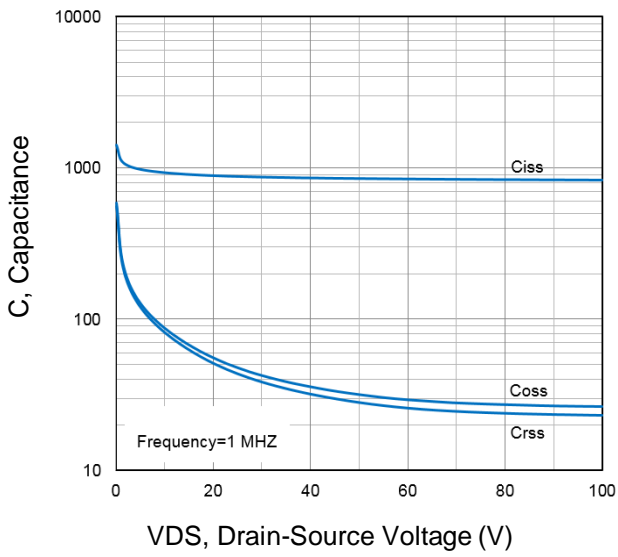


**Fig5.** Drain-Source Voltage vs Gate-Source Voltage

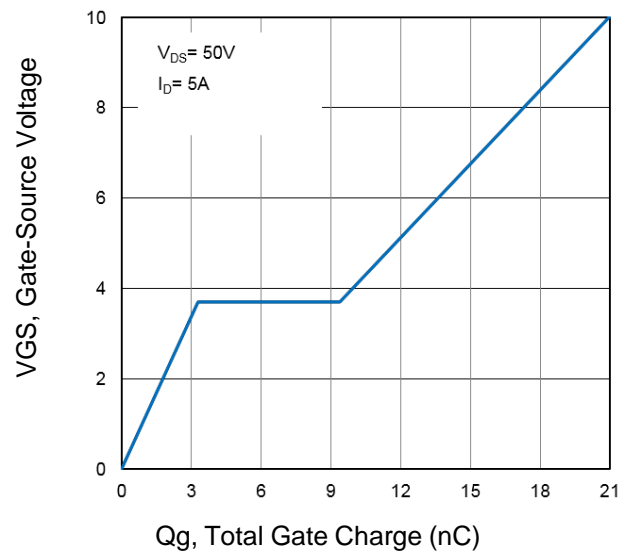


**Fig6.** Typical Source-Drain Diode Forward Voltage

**Typical Characteristics**

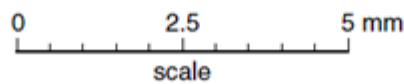
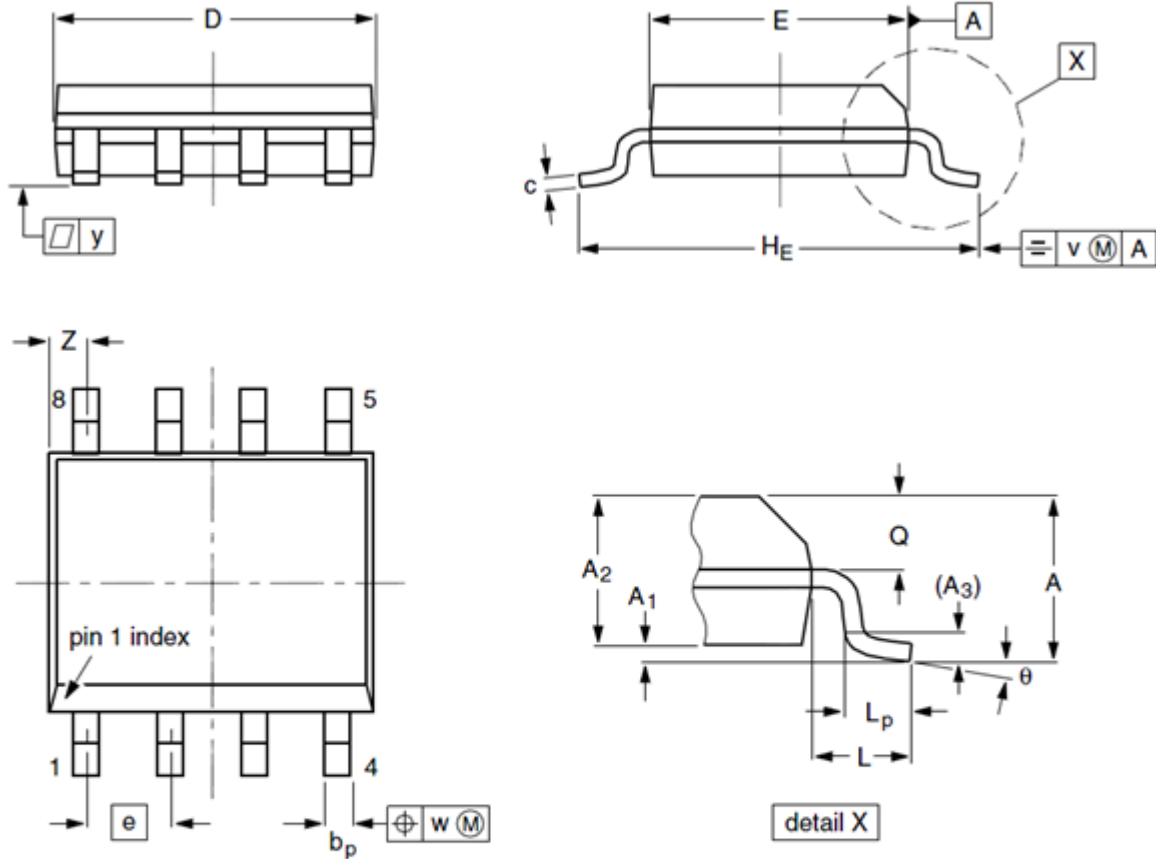


**Fig7.** Typical Capacitance Vs. Drain-Source Voltage



**Fig8.** Typical Gate Charge Vs. Gate-Source Voltage

**SOP8 Mechanical Data**



**DIMENSIONS ( unit : mm )**

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	--	1.75	--	A <sub>1</sub>	0.10	0.18	0.25
A <sub>2</sub>	1.25	1.35	1.45	A <sub>3</sub>	--	0.25	--
b <sub>p</sub>	0.36	0.42	0.49	c	0.19	0.22	0.25
D	4.90	5.00	5.10	E	3.80	3.90	4.00
e	--	1.27	--	H <sub>E</sub>	5.80	5.98	6.20
L	--	1.05	--	L <sub>p</sub>	0.40	0.68	1.00
Q	0.60	0.65	0.70	v	--	0.25	--
w	--	0.25	--	y	--	0.10	--
Z	0.30	0.50	0.70	θ	0°		8°

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