

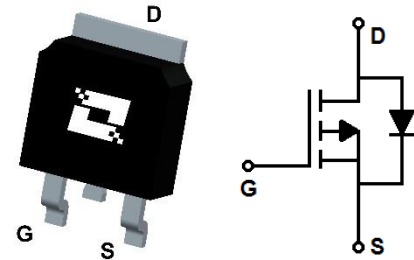
Features

- Low $R_{DS(on)}$ @ $V_{GS} = -10V$
- 100% UIS Tested
- Pb-Free, RoHS Compliant

$V_{(BR)DSS}$	$R_{DS(on)}$ Typ	I_D Max
-60V	54mΩ @ -10V	-18A
	67mΩ @ -4.5V	

Applications

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


TO-252
Order Information

Product	Package	Marking	Packing
DWD060P06	TO-252	060P06	2500PCS/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
Common Ratings (T _A =25°C Unless Otherwise Noted)				
V _{GS}	Gate-Source Voltage		±20	V
V _{(BR)DSS}	Drain-Source Breakdown Voltage		-60	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-50 to 150	°C
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested①	T _A =25°C	-45	A
I _D	Continuous Drain Current	T _A =25°C	-18	A
		T _A =70°C	-14	
P _D	Maximum Power Dissipation	T _A =25°C	26	W
EAS	Avalanche energy, single pulsed ②		29	
R _{θJC}	Thermal Resistance Junction-Ambient		4.8	°C/W

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =-250μA	-60	–	–	V
I _{DSS}	Zero Gate Voltage Drain Current(T _A =25°C)	V _{DS} =-60V, V _{GS} =0V	–	–	-1	μA
	Zero Gate Voltage Drain Current(T _A =125°C)	V _{DS} =-48V, V _{GS} =0V	–	–	-100	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	–	–	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-1.2	-1.6	-2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =-10, I _D =-6A	–	54	65	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =-4.5V, I _D =-4A	–	67	80	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =-30V,V _{GS} =0, f=1MHz	–	821	–	pF
C _{oss}	Output Capacitance		–	64	–	pF
C _{rss}	Reverse Transfer Capacitance		–	53	–	pF
Q _g	Total Gate Charge	V _{DS} =-30V I _D =-10A, V _{GS} =-10V	–	16	–	nC
Q _{gs}	Gate Source Charge		–	1.7	–	nC
Q _{gd}	Gate Drain Charge		–	5.0	–	nC
Switching Characteristics						
t _{d(on)}	Turn on Delay Time	V _{DD} =-30V, I _D =-1A, R _G =3.3Ω, V _{GS} =-10V	–	8.0	–	ns
t _r	Turn on Rise Time		–	12	–	ns
t _{d(off)}	Turn Off Delay Time		-	25	–	ns
t _f	Turn Off Fall Time		–	18	–	ns
Source Drain Diode Characteristics						
I _{SD}	Source drain current(Body Diode)	T _A =25°C	–	–	-18	A
V _{SD}	Forward on voltage②	T _J =25°C, I _{SD} =-2A, V _{GS} =0V	–	-0.80	-1.2	V

Notes:

① Pulse width limited by maximum allowable junction temperature

②Pulse test ; Pulse width≤300μs, duty cycle≤2%.

Typical Characteristics

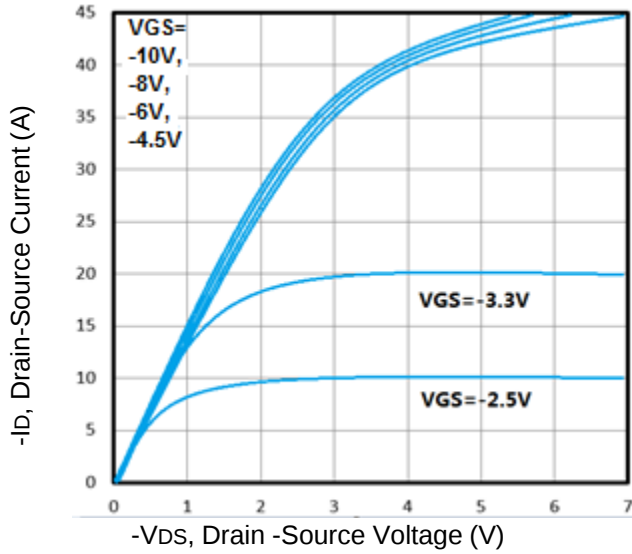


Fig1. Typical Output Characteristics

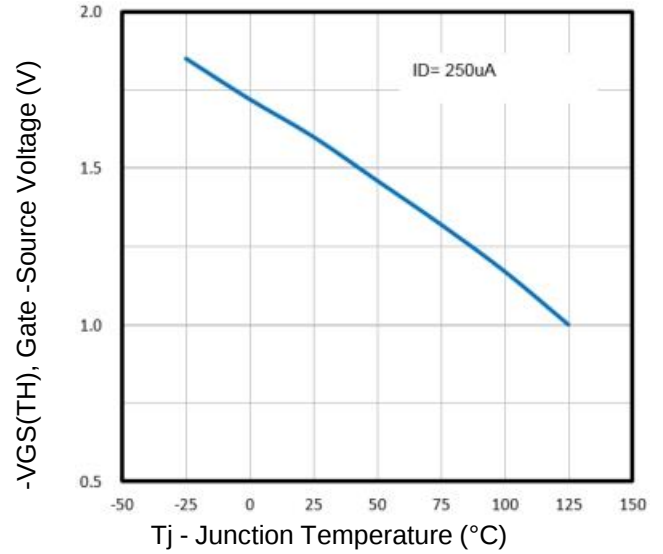


Fig2. Normalized Threshold Voltage Vs. Temperature

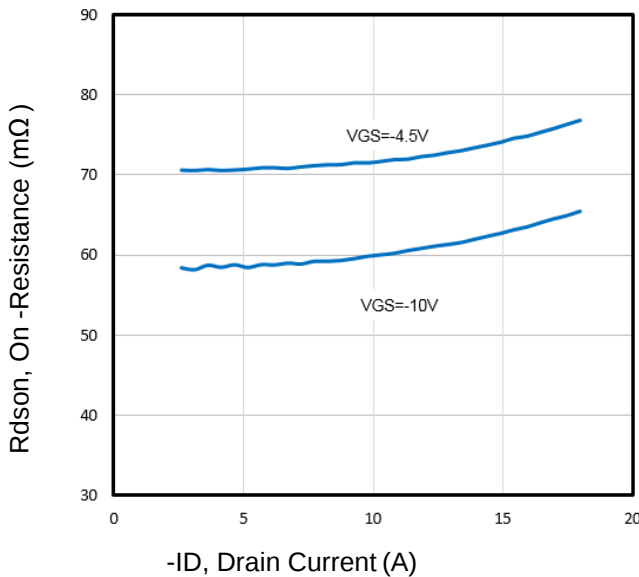


Fig3. On-Resistance vs. Drain Current and Gate

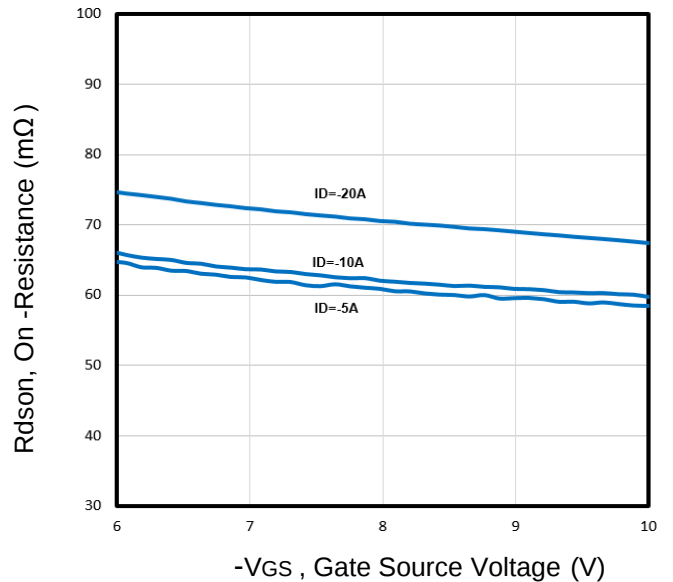


Fig4. On-Resistance vs. Gate Source Voltage

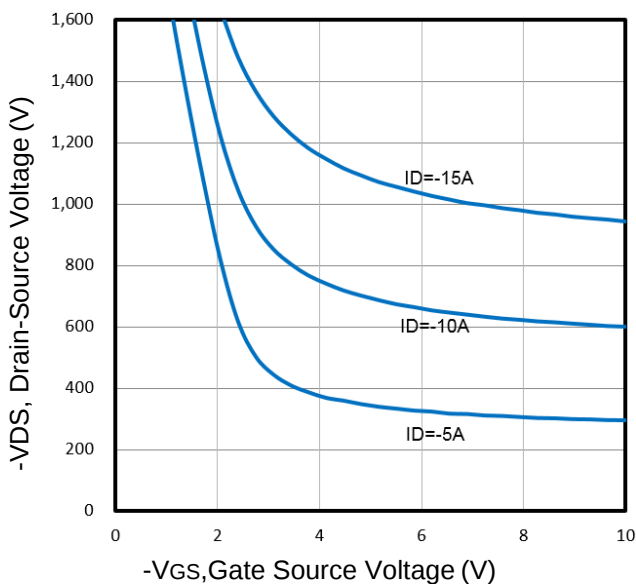


Fig5. Drain-Source Voltage vs Gate-Source Voltage

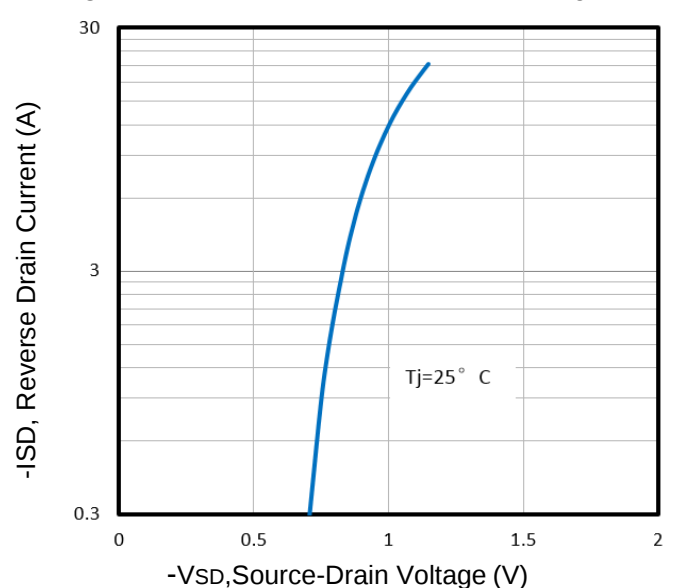


Fig6. Typical Source-Drain Diode Forward Voltage

Typical Characteristics

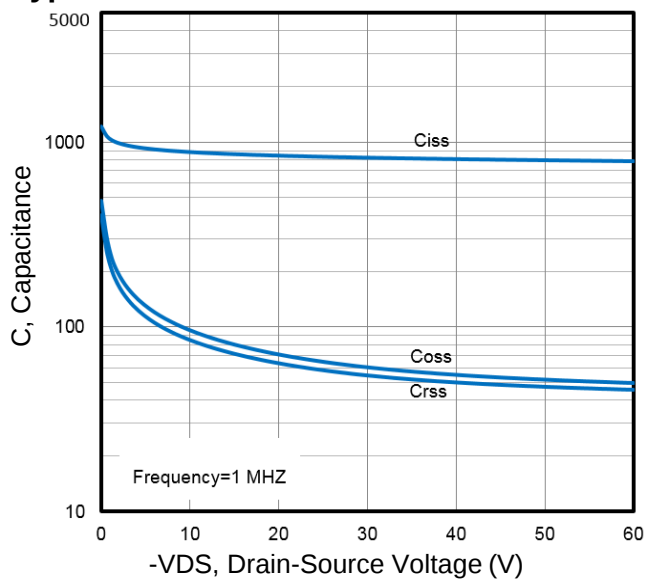


Fig7. Typical Capacitance Vs. Drain-Source Voltage

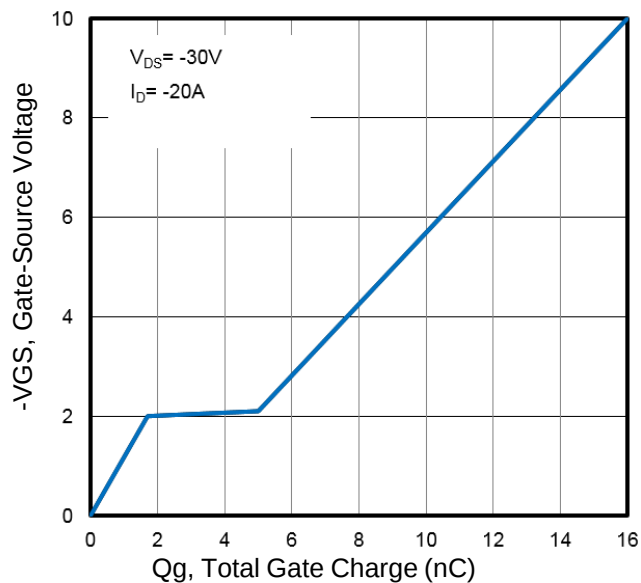
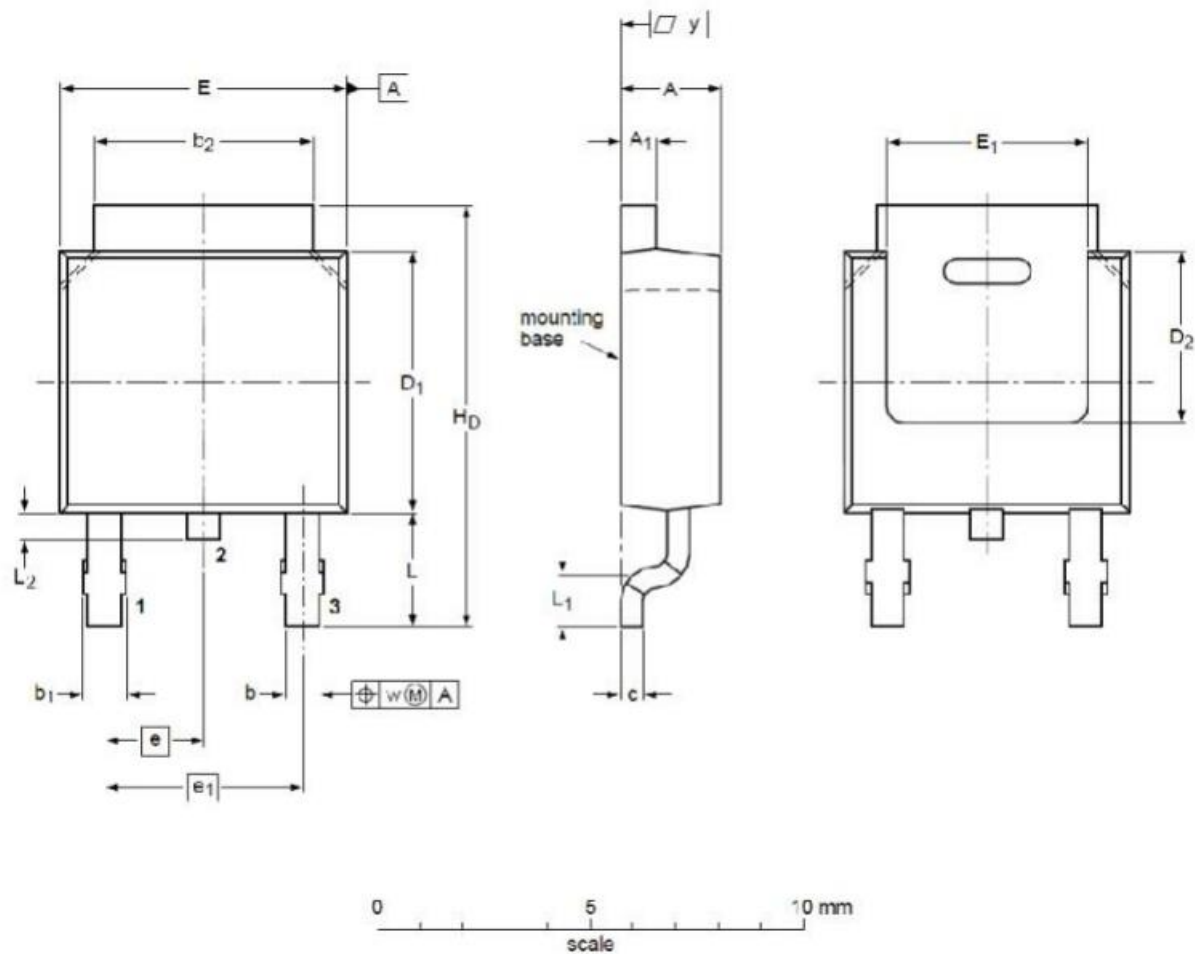


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

TO-252 Mechanical Data

DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	2.22	2.30	2.38	A₁	0.4	0.53	0.65
b	0.68	0.78	0.89	b₁	0.90	0.98	1.10
b₂	5.20	5.33	5.55	c	0.45	0.5	0.55
D₁	5.98	6.10	6.22	D₂	--	4.00	--
E	6.47	6.60	6.73	E₁	5.10	5.28	5.45
e	--	2.28	--	e₁	--	4.57	--
H₀	9.60	10.08	10.40	L	2.75	2.95	3.05
L₁	--	0.50	--	L₂	0.50	--	1.10
w	--	0.20	--	y	0.20	--	--

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