

Features

- N+P Channel
- Very Low on-resistance
- SOT23-6L Package
- Pb-Free, RoHS Compliant

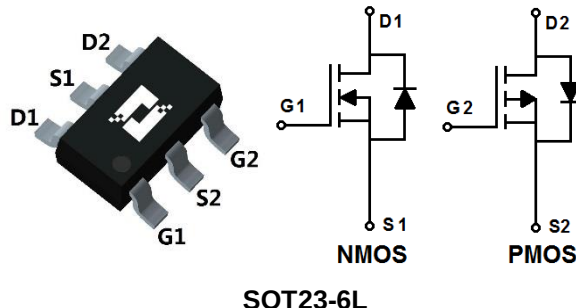
Applications

- DC-DC Conversion Circuits
- Power Switching with Level Shift
- Switching circuits
- Power supply converter

Order Information

Product	Package	Marking	Packing
DWL336C	SOT23-6	X6	3000PCS/Reel

V_{DS}	30	-30	V
$R_{DS(on),TYP@ V_{GS}=\pm 10V}$	45	75	mΩ
$R_{DS(on),TYP@ V_{GS}=\pm 4.5V}$	62	110	mΩ
$I_{D Max}$	5	-2.6	A


SOT23-6L
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
			NMOS	PMOS	
V _{GS}	Gate-Source Voltage		±20	±20	V
V _{(BR)DSS}	Drain-Source Breakdown Voltage		30	-30	V
T _{STG} T _J	Storage and operating temperature range		-55 to 150		°C
I _S	Diode Continuous Forward Current	T _A =25°C	5	-2.6	A
Mounted on Large Heat Sink					
I _{DM}	Pulse Drain Current Tested①	T _A =25°C	20	-10.4	A
I _D	Continuous Drain Current	T _A =25°C	5	-2.6	A
		T _A =70°C	4	-2.2	
P _D	Power dissipation for Dual Operation	T _A =25°C	1.56		W
		T _A =70°C	1		
R _{ΘJA}	Thermal Resistance Junction-Ambient		80		°C/W

N-Channel Electrical Characteristics

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	30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current(T _A =25°C)	V _{DS} =30V, V _{GS} =0V	--	--	1	μA
	Zero Gate Voltage Drain Current(T _A =125°C)	V _{DS} =24V, V _{GS} =0V	--	--	100	uA
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	1.0	1.5	2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =10V, I _D =2A	--	45	60	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =4.5V, I _D =2A	--	62	80	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =3.3V, I _D =1A	--	95	120	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	--	240	--	pF
C _{OSS}	Output Capacitance		--	35	--	pF
C _{rss}	Reverse Transfer Capacitance		--	30	--	pF
Q _g	Total Gate Charge	V _{DS} =15V I _D =3A, V _{GS} =10V	--	3.1	--	nC
Q _{gs}	Gate Source Charge		--	0.4	--	nC
Q _{gd}	Gate Drain Charge		--	1.3	--	nC
Switching Characteristics@ T _J = 25°C (unless otherwise stated)						
t _{d(on)}	Turn on Delay Time	V _{DD} =10V, I _D =1A, R _G =3.3Ω, V _{GS} =10V	--	8	--	ns
t _r	Turn on Rise Time		--	30	--	ns
t _{d(off)}	Turn Off Delay Time		-	19	--	ns
t _f	Turn Off Fall Time		--	28	--	ns
Source Drain Diode Characteristics@ T _J = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage②	I _{SD} =1A, V _{GS} =0V	--	0.83	1.2	V

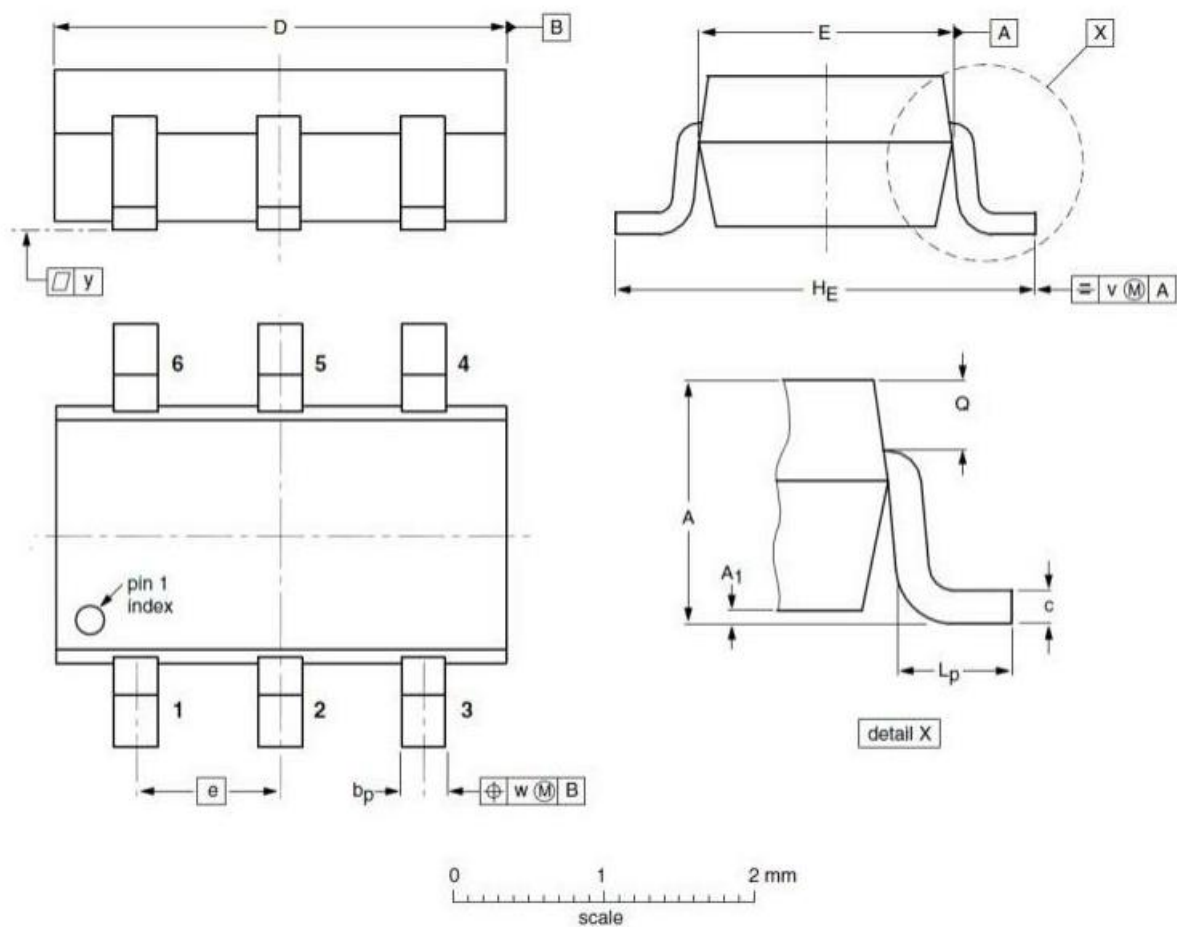
P-Channel Electrical Characteristics

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	-30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current(T _A =25°C)	V _{DS} =-30V, V _{GS} =0V	--	--	-1	μA
	Zero Gate Voltage Drain Current(T _A =125°C)	V _{DS} =-24V, V _{GS} =0V	--	--	-100	uA
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	-1.0	-1.5	-2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =-10V, I _D =-2A	--	75	95	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =-4.5V, I _D =-1A	--	110	130	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
C _{iSS}	Input Capacitance	V _{DS} =-15V,V _{GS} =0V, f=1MHz	--	215	--	pF
C _{oSS}	Output Capacitance		--	40	--	pF
C _{rSS}	Reverse Transfer Capacitance		--	30	--	pF
Q _g	Total Gate Charge	V _{DS} =-15V I _D =-2A, V _{GS} =-10V	--	3.3	--	nC
Q _{gs}	Gate Source Charge		--	0.4	--	nC
Q _{gd}	Gate Drain Charge		--	1.2	--	nC
Switching Characteristics@ T _J = 25°C (unless otherwise stated)						
t _{d(on)}	Turn on Delay Time	V _{DD} =-10V, I _D =-1A, R _G =3.3Ω, V _{GS} =-10V	--	10	--	ns
t _r	Turn on Rise Time		--	12	--	ns
t _{d(off)}	Turn Off Delay Time		-	15	--	ns
t _f	Turn Off Fall Time		--	32	--	ns
Source Drain Diode Characteristics@ T _J = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage②	I _{SD} =-1A, V _{GS} =0V	--	-0.85	-1.2	V

Notes:

① Pulse width limited by maximum allowable junction temperature

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

SOT23-6 Mechanical Data

DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.07	1.10	A ₁	0.01	0.05	0.10
b _p	0.25	0.35	0.40	c	0.10	0.18	0.26
D	2.70	2.92	3.10	E	1.30	1.55	1.70
e	--	0.95	--	H _E	2.50	2.80	3.00
L _p	0.20	0.38	0.60	Q	0.23	0.29	0.33
v	--	0.20	--	w	--	0.20	--
y	--	0.10	--				

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