

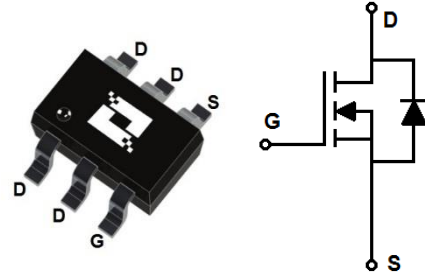
**Features**

- Low  $R_{DS(on)}$  @  $V_{GS}=10V$
- 5V Logic Level Control
- N Channel SOT363 Package
- Pb-Free, RoHS Compliant

$V_{(BR)DSS}$	$R_{DS(ON)}$ Typ	$I_D$ Max
100V	112m $\Omega$ @10V	3A
	142m $\Omega$ @4.5V	

**Applications**

- Charging switch for portable devices
- Small brush-less DC motor drive
- Load Switch for Portable Devices
- DC-to-DC converters
- Power Management Functions


**SOT363**
**Order Information**

Product	Package	Marking	Packing
DWU1480	SOT363	1480	3000PCS/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.

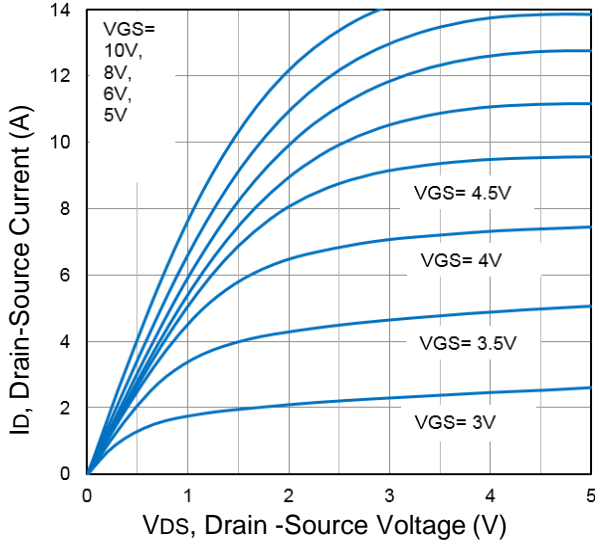
Symbol	Parameter	Rating	Unit
<b>Common Ratings (<math>T_A=25^\circ\text{C}</math> Unless Otherwise Noted)</b>			
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	100	V
$T_J$	Maximum Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-50 to 150	$^\circ\text{C}$
<b>Mounted on Large Heat Sink</b>			
$I_{DM}$	Pulse Drain Current Tested <sup>①</sup>	$T_A=25^\circ\text{C}$	14 A
$I_D$	Continuous Drain Current	$T_A=25^\circ\text{C}$	3 A
		$T_A=70^\circ\text{C}$	2.4
$P_D$	Maximum Power Dissipation	$T_A=25^\circ\text{C}$	3.6 W
		$T_A=70^\circ\text{C}$	2.8
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	400	$^\circ\text{C/W}$

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> =±20V, 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	1.0	1.5	2.5	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance②	V <sub>GS</sub> =10V, I <sub>D</sub> =3A	-	112	150	mΩ
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance②	V <sub>GS</sub> =4.5V, I <sub>D</sub> =1A	-	142	200	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	-	96	-	pF
C <sub>oss</sub>	Output Capacitance		-	53	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		-	3	-	pF
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =50V I <sub>D</sub> =2A, V <sub>GS</sub> =10V	-	2.9	-	nC
Q <sub>gs</sub>	Gate Source Charge		-	0.7	-	nC
Q <sub>gd</sub>	Gate Drain Charge		-	0.8	-	nC
<b>Switching Characteristics</b>						
t <sub>d(on)</sub>	Turn on Delay Time	V <sub>DD</sub> =50V, I <sub>D</sub> =2A, R <sub>G</sub> =3.3Ω, V <sub>GS</sub> =10V	-	40	-	ns
t <sub>r</sub>	Turn on Rise Time		-	68	-	ns
t <sub>d(off)</sub>	Turn Off Delay Time		-	14	-	ns
t <sub>f</sub>	Turn Off Fall Time		-	20	-	ns
<b>Source Drain Diode Characteristics</b>						
I <sub>SD</sub>	Source drain current(Body Diode)	T <sub>A</sub> =25°C	-	-	3.0	A
V <sub>SD</sub>	Forward on voltage②	T <sub>J</sub> =25°C, I <sub>SD</sub> =2A, V <sub>GS</sub> =0V	-	-	1.2	V

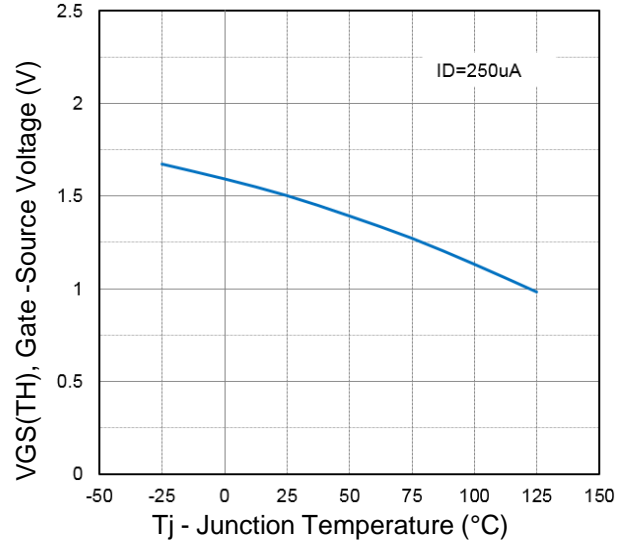
Notes:

- ① Pulse width limited by maximum allowable junction temperature ②Pulse test ; Pulse width≤300μs, duty cycle≤2%.

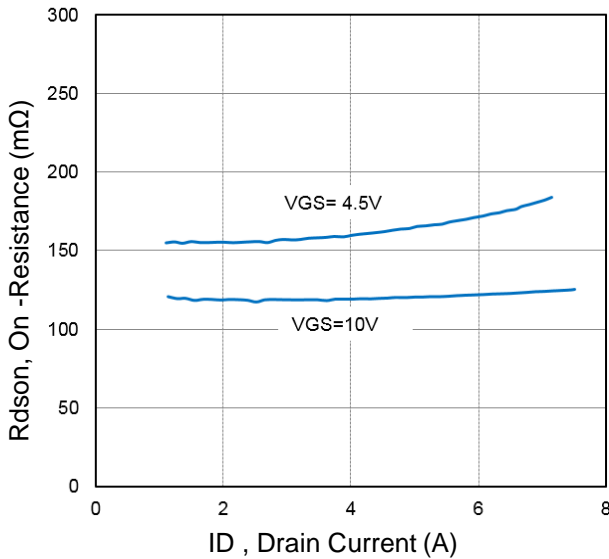
**Typical Characteristics**



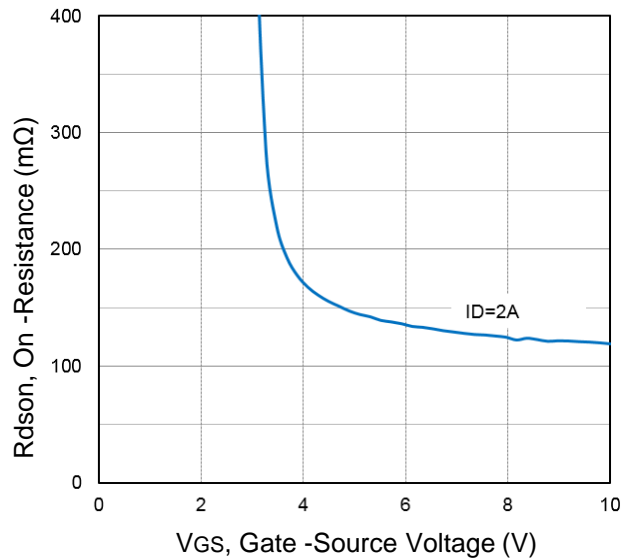
**Fig1.** Typical Output Characteristics



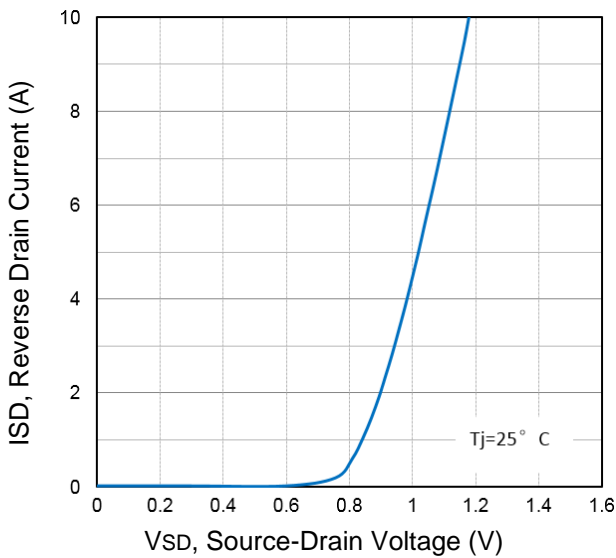
**Fig2.** Normalized Threshold Voltage Vs. Temperature



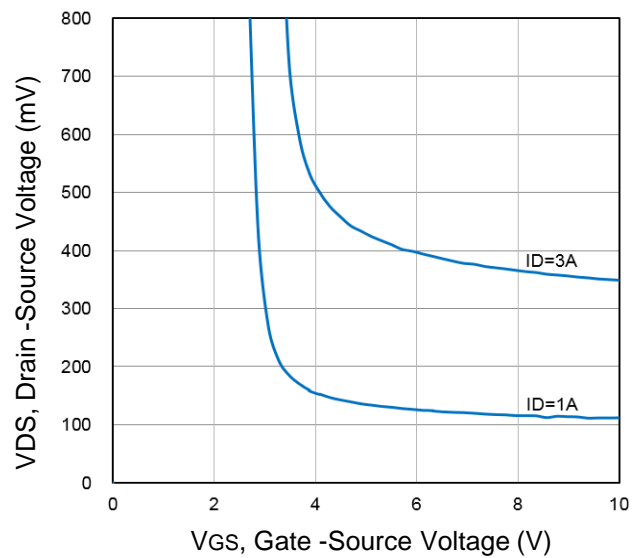
**Fig3.** On-Resistance vs. Drain Current and Gate Voltage



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

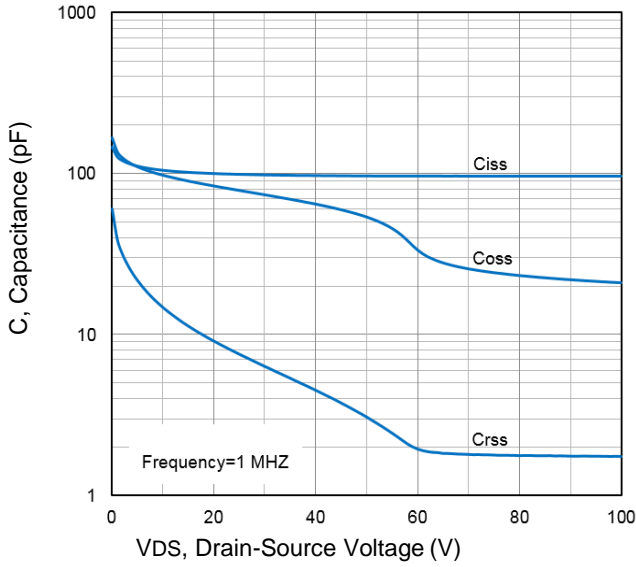


**Fig5.** Typical Source-Drain Diode Forward Voltage

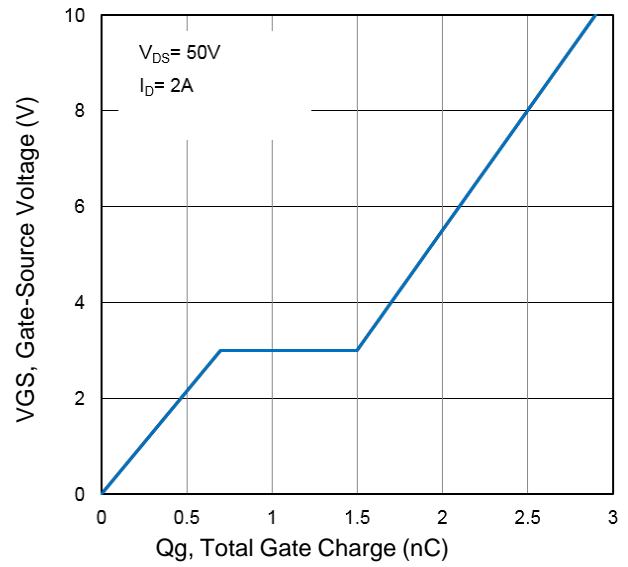


**Fig6.** Drain-Source Voltage vs Gate-Source Voltage

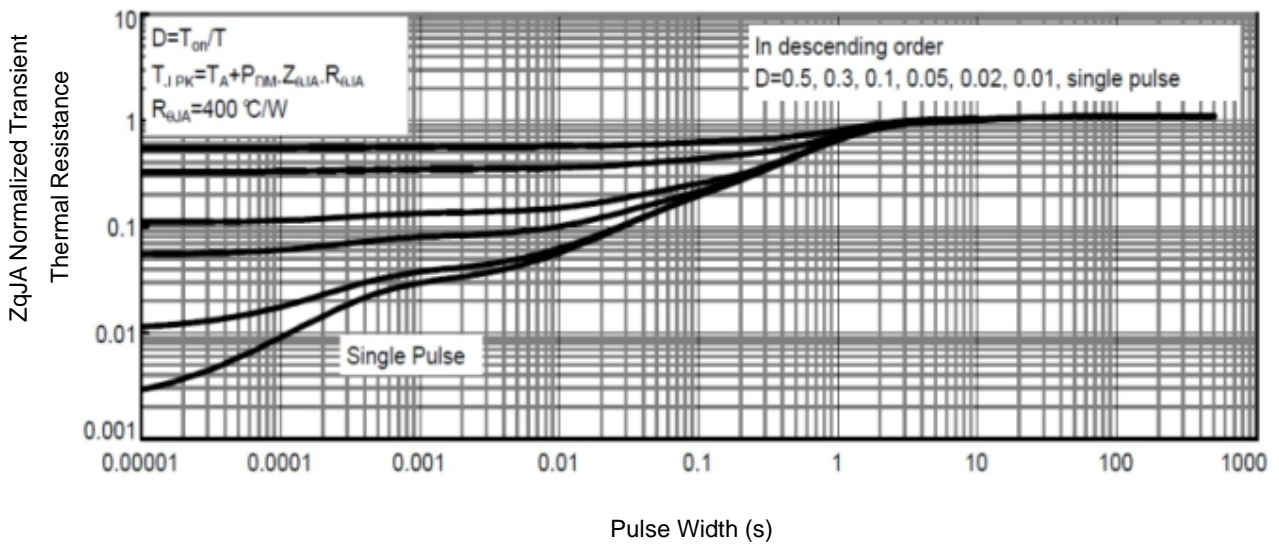
**Typical Characteristics**



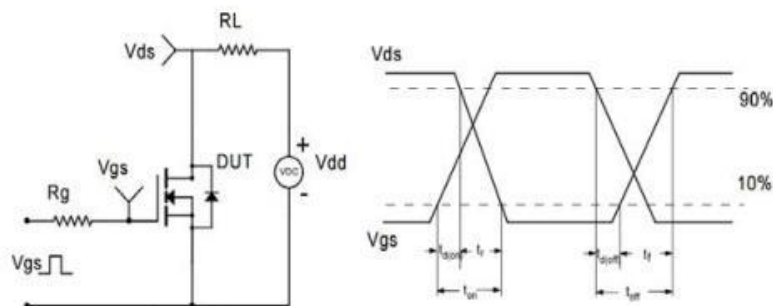
**Fig7.** Typical Capacitance Vs. Drain-Source Voltage



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

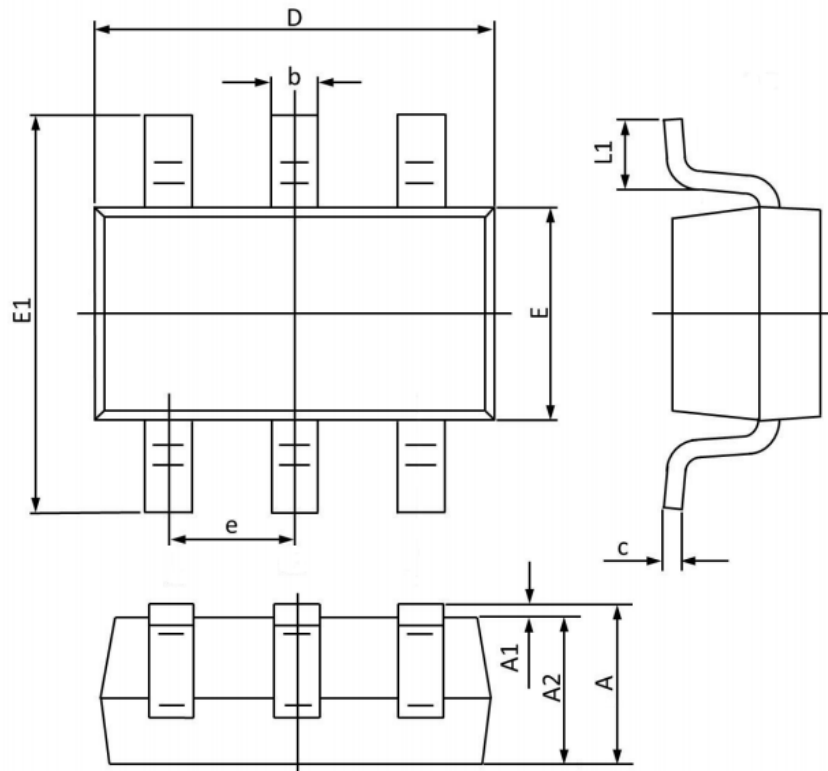


**Fig9.** Normalized Maximum Transient Thermal Impedance



**Fig10.** Switching Time Test Circuit and waveforms

SOT363 Mechanical Data



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.100	0.800	0.043	0.031
A1	0.100	0.000	0.004	0.000
A2	1.000	0.800	0.039	0.031
b	0.330	0.100	0.013	0.004
c	0.250	0.100	0.010	0.004
D	2.200	1.800	0.087	0.071
E	1.350	1.150	0.053	0.045
E1	2.400	1.800	0.094	0.071
e	0.65BSC		0.026BSC	
L1	0.350	0.100	0.014	0.004

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