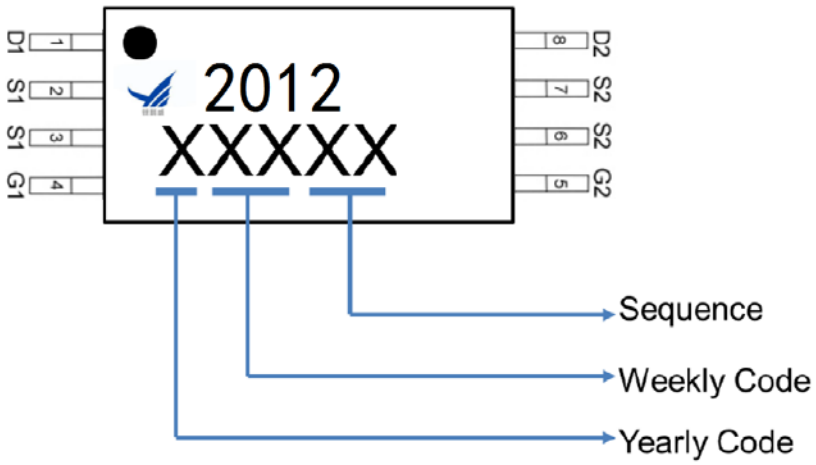
PWE2012

Dual N-Channel Enhancement-Mode MOSFET(18V, 10A)

PRODUCT SUMMARY		
V_{DSS}	I_D	$R_{DS(on)}$ (m-ohm) Max
18V	10A	14 @ VGS = 4.5V, ID=4.5A
		18 @ VGS = 2.5V, ID=3.5A

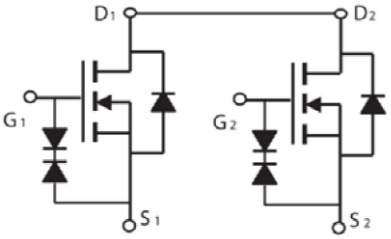
◆ Features

1. High density cell design for ultra low On-Resistance.
2. Advanced trench process technology.
3. RoHS Compliant.
4. ESD Protected



TSSOP-8

Pin 1/8: Drain1/ Drain2
Pin 2/3: Source1
Pin 4: Gate1
Pin 5: Gate2
Pin 6 / 7 : Source2



◆ Absolute Maximum Ratings(T_A=25°C, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	18	V
V_{GS}	Gate-Source Voltage	±10	V
I_D	Drain Current (Continuous) [a]	10	A
I_{DM}	Drain Current (Pulsed) [b]	32	A
P_D	Total Power Dissipation @TA=25°C	2	W
T_j, T_{stg}	Operating Junction and Storage Temperature Range	-55 to +150	°C
$R_{\theta JA}$	Thermal Resistance Junction to Ambient (PCB mounted) [c]	100	°C/W

a:Fused current that based on wire numbers and diameter

b:Repetitive Rating: Pulse width limited by the maximum junction temperature

c:1-in^2 2oz Cu PCB board

◆ Electrical Characteristics (T_A=25°C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
• Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	18	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=15V, V_{GS}=0V	-	-	1	uA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±10V, V_{DS}=0V	-	-	±10	uA
• On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	0.5	-	1.1	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS}=4.5V, I_D=4.5A	-	10	14	mΩ
		V_{GS}=2.5V, I_D=3.5A	-	13	18	
• Dynamic Characteristics[d]						
C_{iss}	Input Capacitance	V_{DS}=10V, V_{GS}=0V, f=1MHz	-	950	-	pF
C_{oss}	Output Capacitance		-	450	-	
C_{rss}	Reverse Transfer Capacitance		-	135	-	
• Switching Characteristics[d]						
Q_g	Total Gate Charge	V_{DS}=10V, I_D=3A, V_{GS}=4.5V	-	9.2	-	nC
Q_{gs}	Gate-Source Charge		-	2.7	-	
Q_{gd}	Gate-Drain Charge		-	3.7	-	
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=10V, I_D=1A, V_{GEN}=4.5V, R_G=6Ω	-	10	-	nS
t_r	Turn-on Rise Time		-	14	-	
$t_{d(off)}$	Turn-off Delay Time		-	39	-	
t_f	Turn-off Fall Time		-	26	-	
• Drain-Source Diode Characteristics						
I_S	Maximum Diode Forward Current		-	-	1.7	A
V_{SD}	Drain-Source Diode Forward Voltage	V_{GS}=0V, I_S=1.7A	-	-	1.2	V

Note: Pulse Test: Pulse Width ≤300us, Duty Cycle≤2%

d: Guaranteed by design: not subject to production testing

◆ Characteristics Curve

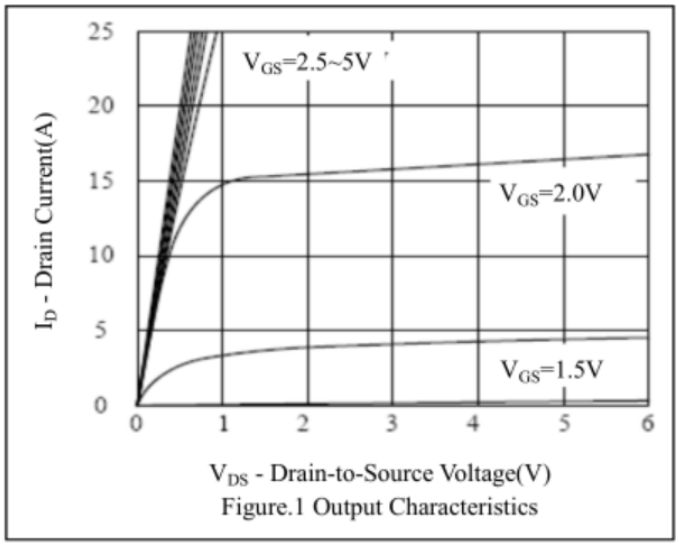


Figure.1 Output Characteristics

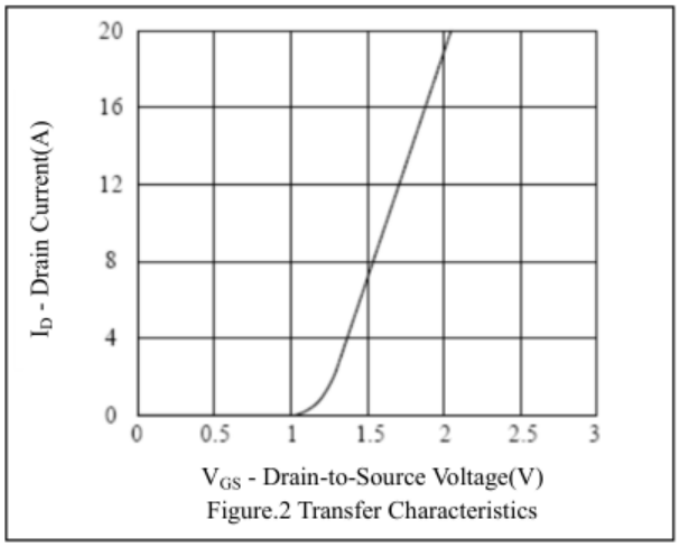


Figure.2 Transfer Characteristics

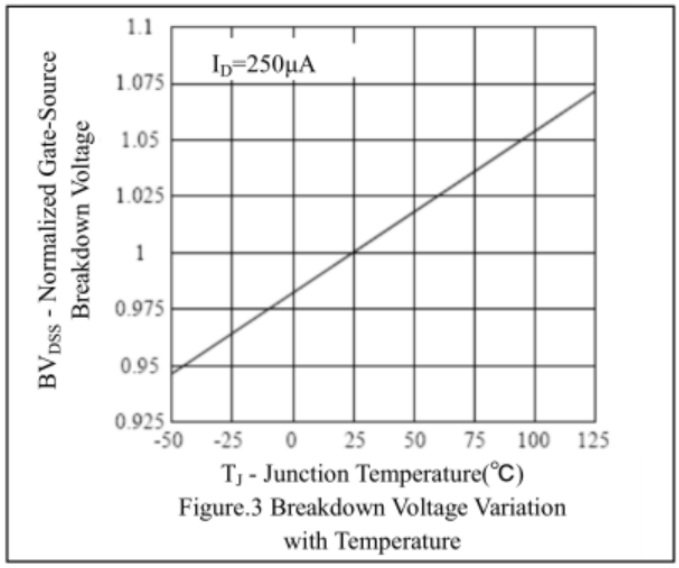


Figure.3 Breakdown Voltage Variation with Temperature

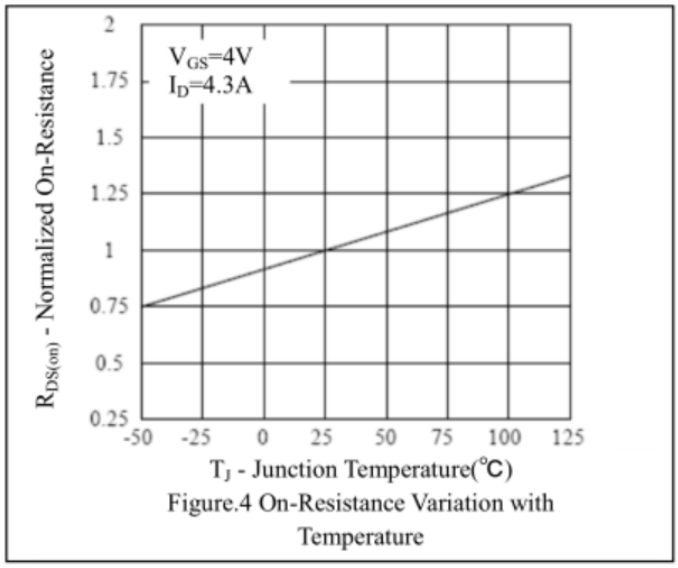


Figure.4 On-Resistance Variation with Temperature

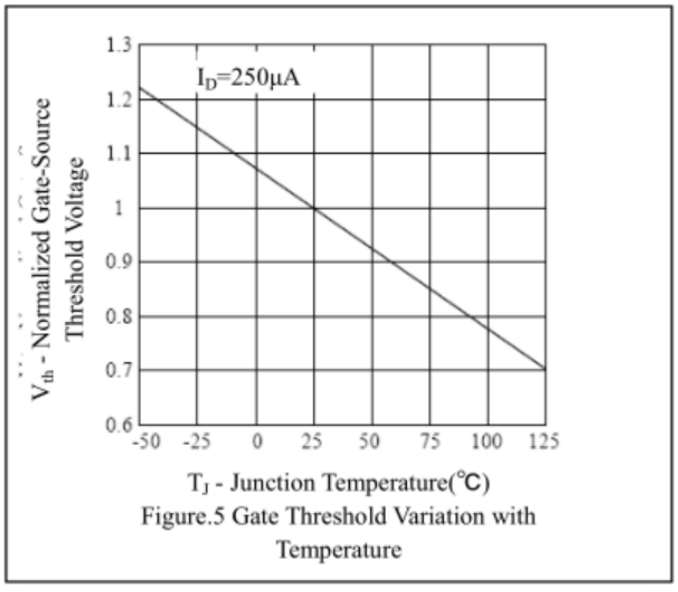


Figure.5 Gate Threshold Variation with Temperature

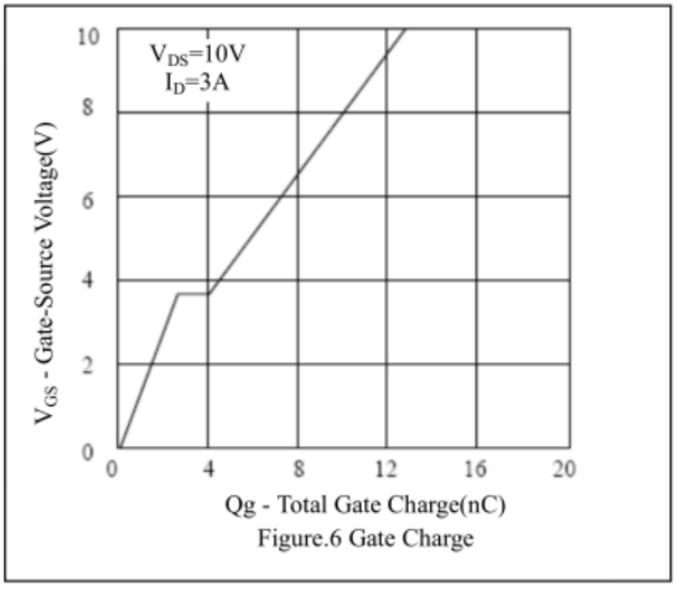


Figure.6 Gate Charge

◆ Characteristics Curve

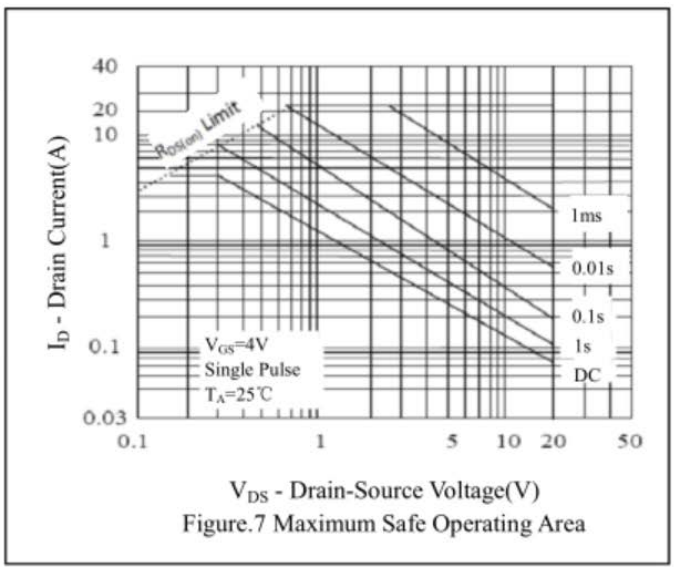


Figure.7 Maximum Safe Operating Area

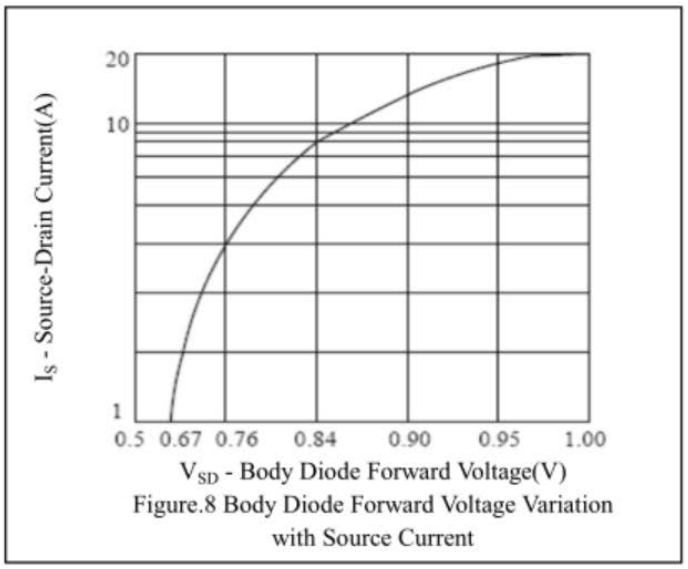


Figure.8 Body Diode Forward Voltage Variation with Source Current

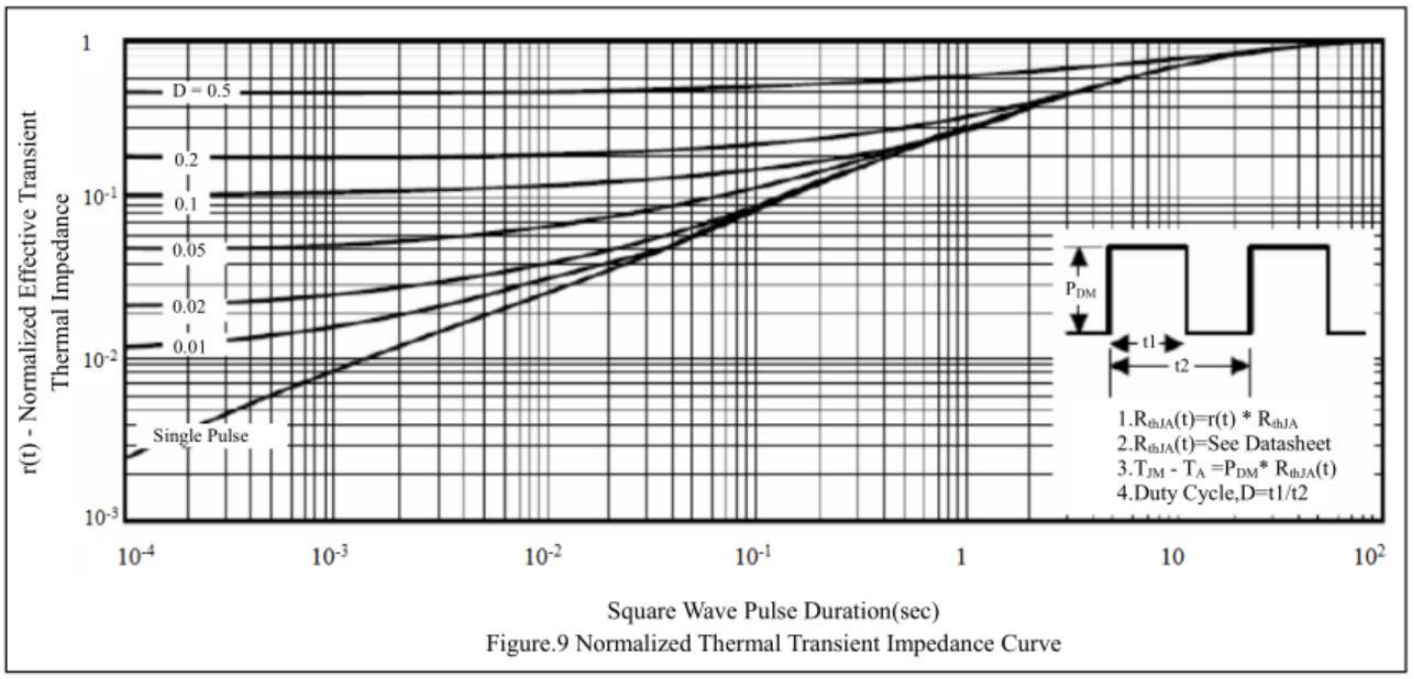


Figure.9 Normalized Thermal Transient Impedance Curve