



鑫沃科技
XIN WO TECHNOLOGY



XWN803H

N-ch Enhancement Mode Power MOSFET

TO-263/85V/±20V/3V/120A/3mΩ

深圳东为电子科技有限公司
DONGWEI ELECTRONIC TECHNOLOGY CO., LTD

1.Features

- ◆ Low Gate Charge
- ◆ Ultra-low $R_{DS(on)}$
- ◆ Halogen-free and RoHS-compliant

V_{DS}	$R_{DS(on)}$ Typ.	I_D Max.
85V	3.0mΩ @10V	120A

2.Applications

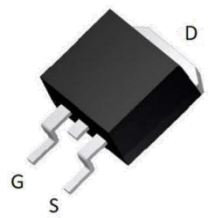
- ◆ Current Switching in DC/DC & AC/DC (SR)

Sub-system

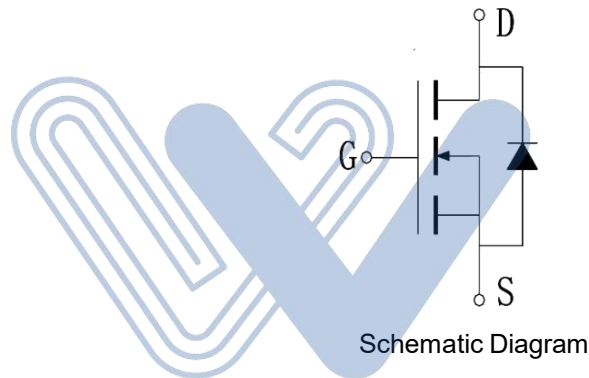
- ◆ Motor Driving in Power Tool, E-vehicle,

Robotics

100% Avalanche&Rg Tested



TO-263
Pin Description



Schematic Diagram

3.Package Marking and Ordering Information

Part no.	Package	Marking	Material Code	$V_{GS(th)}$	PCS/Reel	PCS/CTN.
XWN803H	TO-263	*	1221102000012	2.7V-2.9V	800	4000
			1221102000029	2.9V-3.1V		
			1221102000036	3.1V-3.3V		
			1221102000043	3.3V-3.5V		

4. Absolute Max Ratings at Ta=25°C (Note1)

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	V_{DSS}	85	V
Gate to Source Voltage	V_{GSS}	± 20	V
Drain Current (DC)	I_D	120	A
Drain Current (Pulse), $PW \leq 300\mu s$	I_{DP}	480	A
Total Dissipation	P_D	174	W
Avalanche Energy, Single Pulsed	E_{AS}	961	mJ
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55 to +150	°C

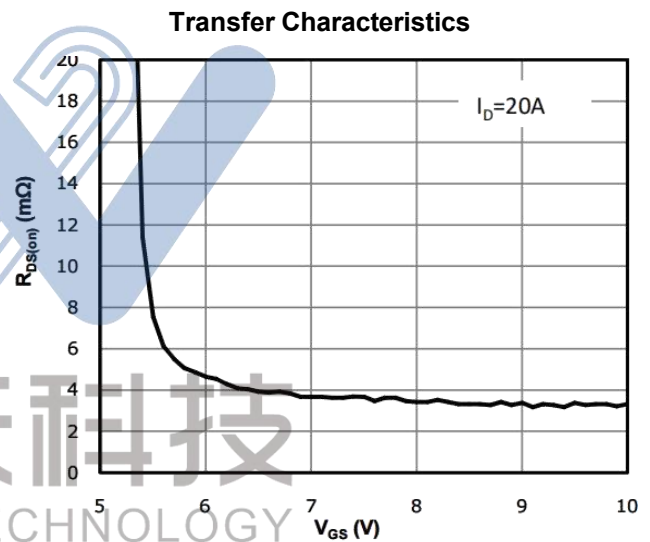
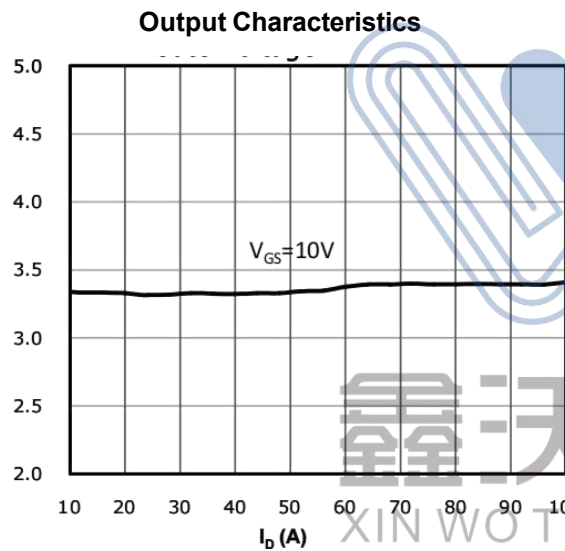
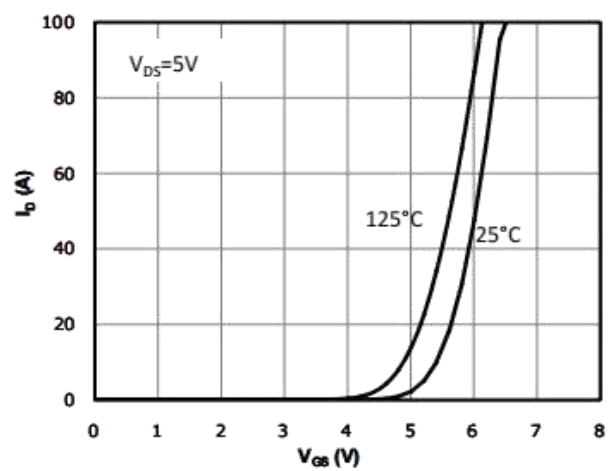
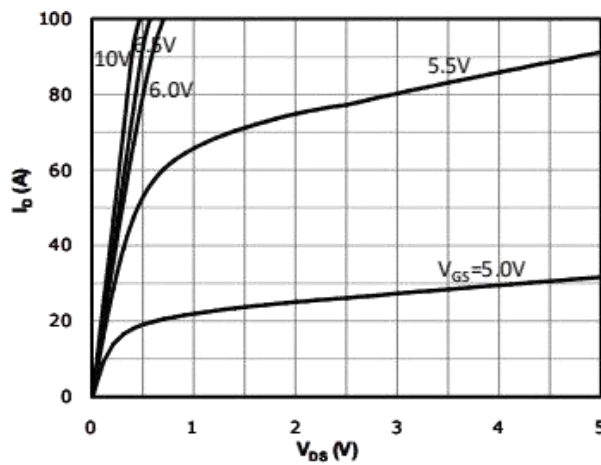
Note 1: Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

5. Electrical Characteristics at Ta=25°C (Note 2)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 250\mu A$, $V_{GS} = 0V$	85			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 90V$, $V_{GS} = 0V$			1	μA
Gate to Source Leakage Current	I_{GSS1}	$V_{GS} = \pm 20V$, $V_{SS} = 0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_{DS} = 250\mu A$	2.1		3.9	V
Static Drain to Source On-State Resistance	$R_{DS(on)}$	$I_D = 30A$, $V_{GS} = 10V$	-	3.0	3.7	m Ω
Input Capacitance	C_{iss}	$V_{GS} = 0V$,		2856		pF
Output Capacitance	C_{oss}	$V_{DS} = 40V$,		957		pF
Reverse Transfer Capacitance	C_{rss}	Frequency=1.0MHz		107		pF
Turn-on Delay Time	$t_{d(on)}$	$V_{DS} = 40V$ $V_{GS} = 10V$, $R_{GEN} = 3\Omega$		21		ns
Rise Time	t_r			39		ns
Turn-off Delay Time	$t_{d(off)}$			46		ns
Fall Time	t_f			23		ns
Total Gate Charge	Q_g	$V_{DS} = 40V$, $V_{GS} = 10V$, $I_D = 50A$, $f = 1MHz$		56		nC
	Q_{gs}			15.5		nC
	Q_{gd}			13		nC
Diode Forward Voltage	V_{FSD}	$I_S = 30A$, $V_{GS} = 0$	0.4	0.83	1.1	V

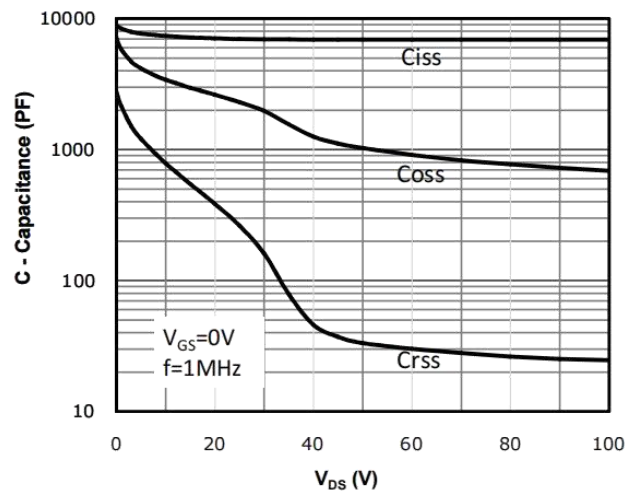
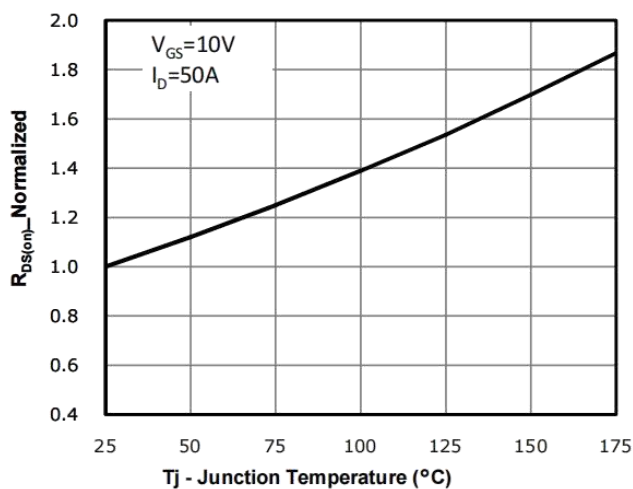
Note 2 : Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

6. Typical electrical and thermal characteristics



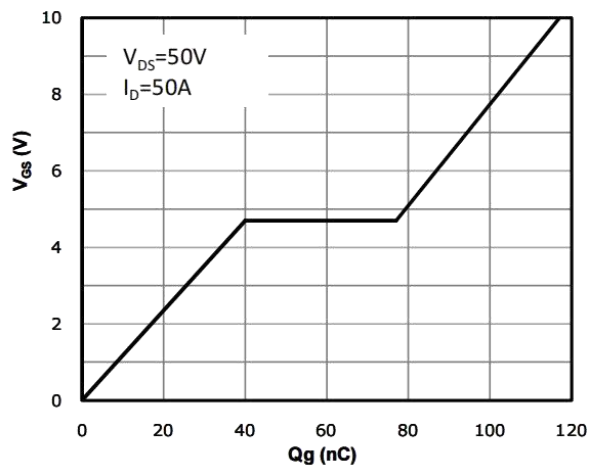
$R_{DS(on)}$ vs. Drain Current

$R_{DS(on)}$ vs Gate Voltage

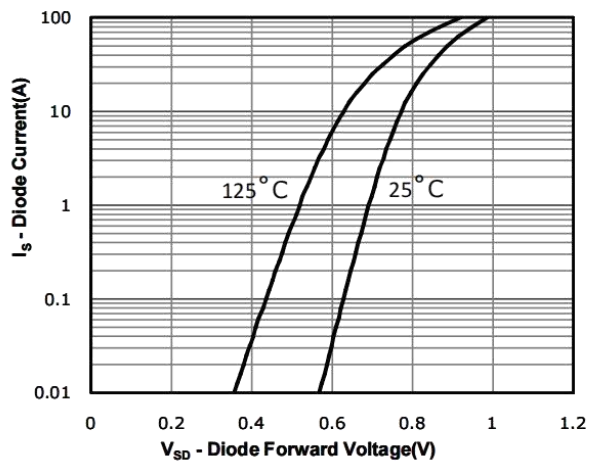


$R_{DS(on)}$ vs. Temperature

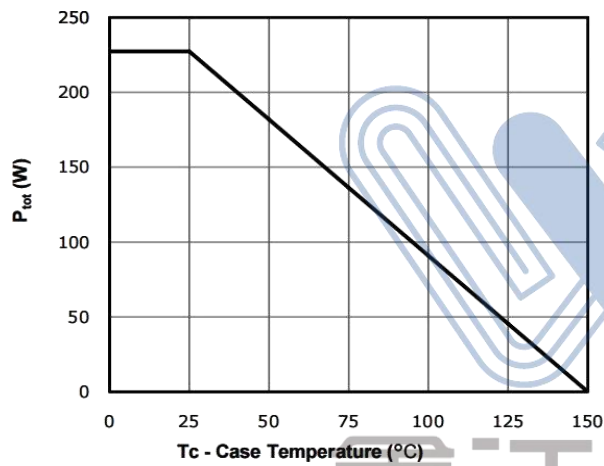
Capacitance Characteristics



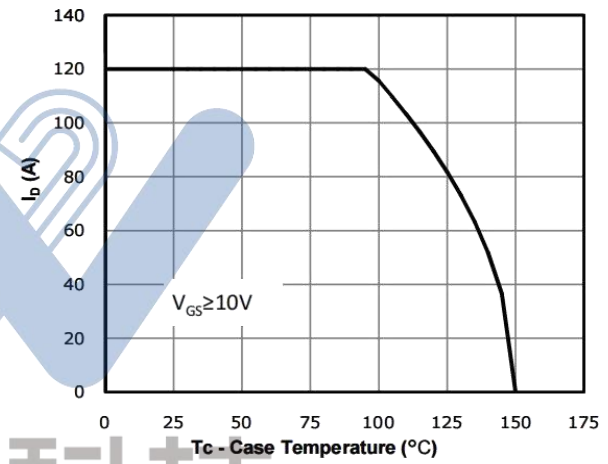
Gate Charge Characteristics



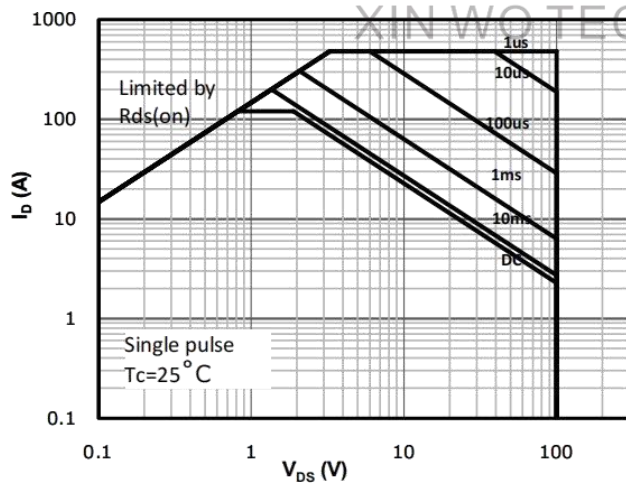
Body-diode Forward Characteristics



Power Dissipation

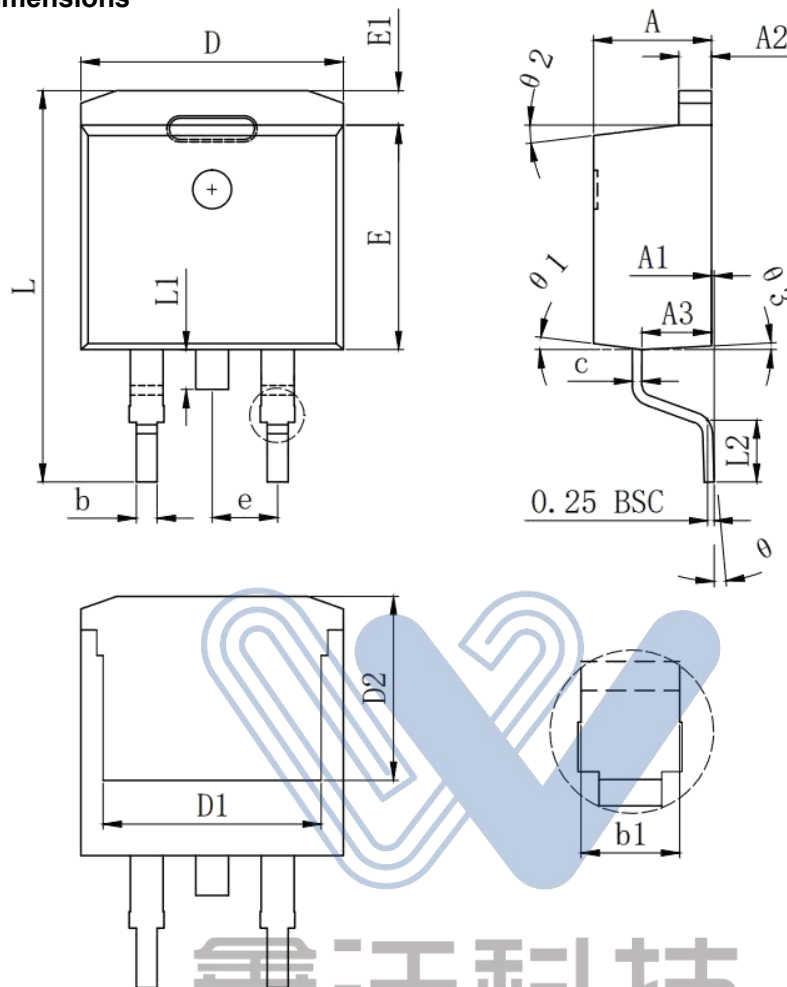


Drain Current Derating



Safe Operating Area

7. Package Dimensions



SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	4.370	4.570	4.770
A1	0.000		0.250
A2	1.220	1.270	1.420
A3	2.490	2.690	2.890
b	0.700	0.810	0.960
b1	1.170	1.270	1.470
c	0.300	0.380	0.530
D	9.860	10.160	10.360
D1	8.400 REF		
D2	7.073 REF		
E	8.500	8.700	8.900
E1	1.070	1.270	1.470
e	2.540 TYP		
L	14.700	15.100	15.500
L1	1.400	1.550	1.700
L2	2.000	2.300	2.600
θ	0°		9°
θ 1	7° TYP		
θ 2	7° TYP		
θ 3	3° TYP		