



- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology

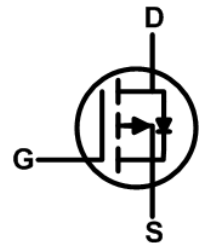
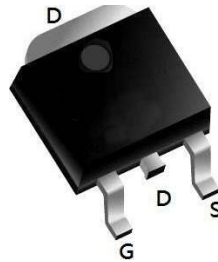
Product Summary

BVDSS	RDS(on)	ID
-30V	36mΩ	-20 A

TO252 Pin Configuration
Description

The XXW20P03 is the high cell density trenched P-ch MOSFETs, which provides excellent RDS(on) and efficiency for most of the small power switching and load switch applications.

The XXW20P03 meet the RoHS and Green Product requirement with full function reliability approved.


Absolute Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Max.	Units	
V_{DSS}	Drain-Source Voltage	-30	V	
V_{GSS}	Gate-Source Voltage	± 20	V	
I_D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	-20	A
		$T_C = 100^\circ\text{C}$	-13	A
I_{DM}	Pulsed Drain Current ^{note1}	-30	A	
EAS	Single Pulsed Avalanche Energy ^{note2}	15	mJ	
P_D	Power Dissipation $T_C = 25^\circ\text{C}$	19	W	
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	5.2	$^\circ\text{C}/\text{W}$	
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +175	$^\circ\text{C}$	

P-Ch 30V Fast Switching MOSFETs
Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V_{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V _{DS} = -30V, V _{GS} = 0V	-	-	-1	μA
Gate-Source Leakage	I_{GSS}	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA
Gate-Source Threshold voltage	V_{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.5	-2.5	V
Drain-Source on-State Resistance ³	R_{DS(on)}	V _{GS} = -10V, I _D = -4.1A	-	36	50	mΩ
		V _{GS} = -4.5V, I _D = -3A	-	49	75	
Dynamic Characteristics⁴						
Input Capacitance	C_{iss}	V _{GS} = 0V , V _{DS} = -15V, f = 1.0MHz	-	530	-	pF
Output Capacitance	C_{oss}		-	70	-	
Reverse Transfer Capacitance	C_{rss}		-	56	-	
Switching Characteristics⁴						
Total Gate Charge	Q_g	V _{GS} = -10V, V _{DS} = -15V, I _D = -4.1A	-	6.8	-	nC
Gate-Source Charge	Q_{gs}		-	1.0	-	
Gate-Drain Charge	Q_{gd}		-	1.4	-	
Turn-on Delay Time	t_{d(on)}	V _{GS} = -10V, V _{DS} = -15V , R _L = 15Ω,R _{GEN} = 2.5Ω	-	14	-	ns
Rise Time	t_r		-	61	-	
Turn-off Delay time	t_{d(off)}		-	19	-	
Fall Time	t_f		-	10	-	
Source-Drain Body Diode Characteristics						
Diode Forward Voltage ³	V_{SD}	I _S = -4.1A, V _{GS} = 0V	-	-	-1.2	V
Continuous Source Current	I_S		-	-	-20	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C.
2. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.
4. This value is guaranteed by design hence it is not included in the production test.

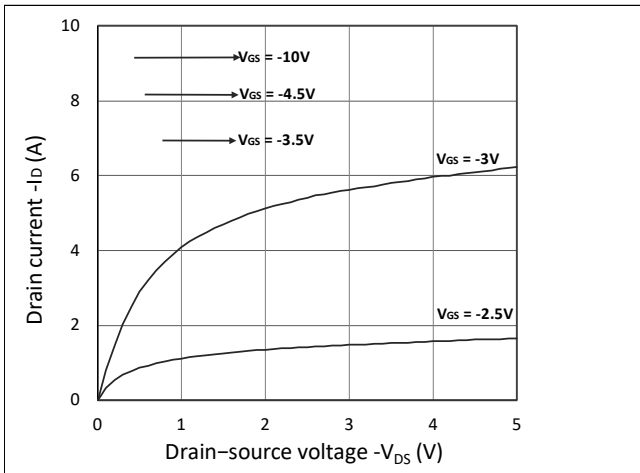
Typical Characteristics


Figure 1. Output Characteristics

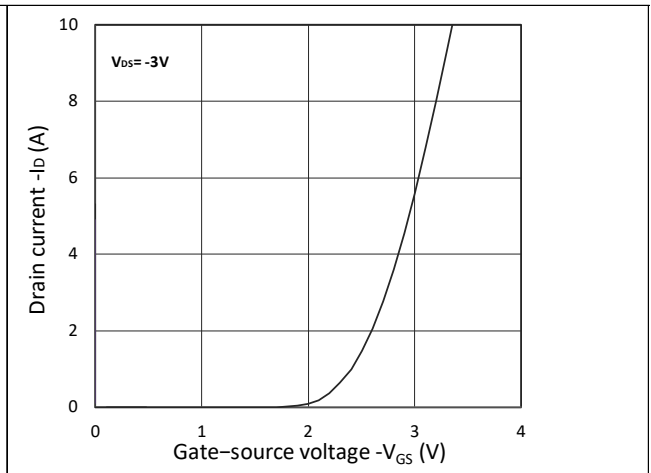


Figure 2. Transfer Characteristics

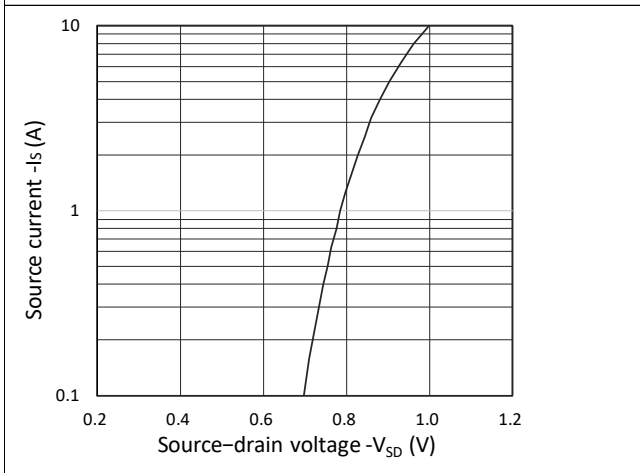
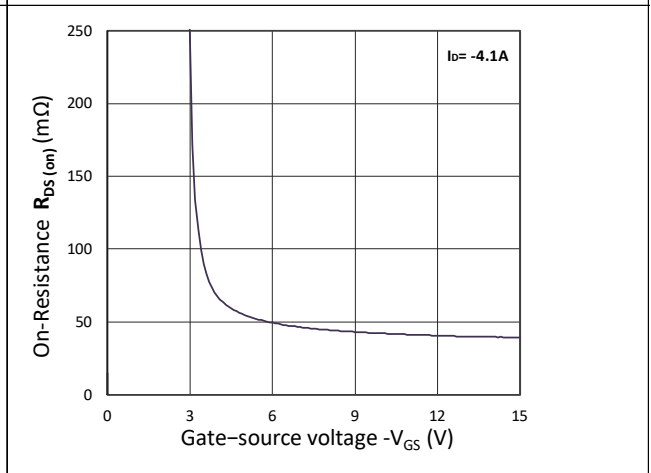
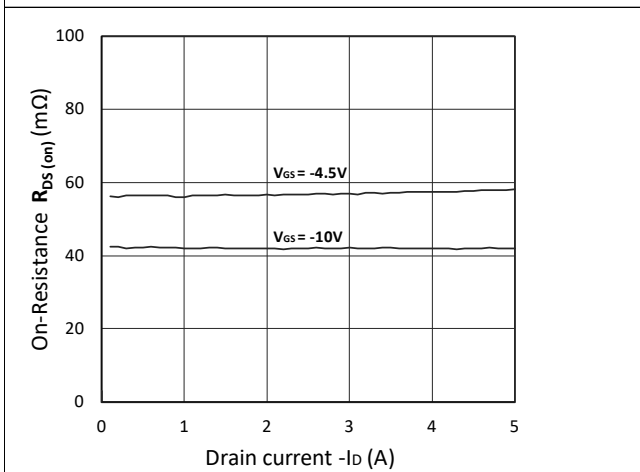
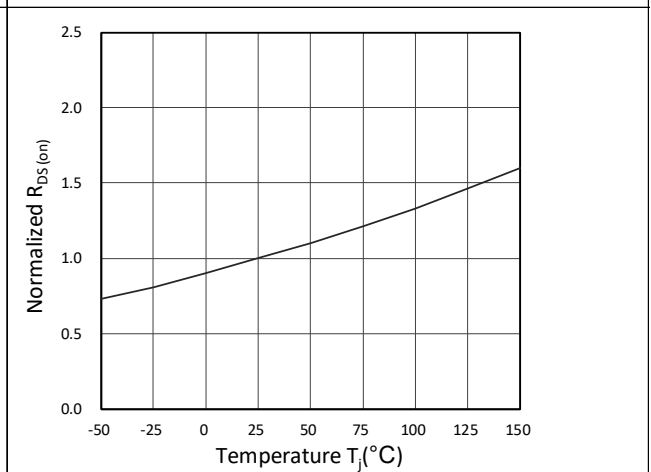
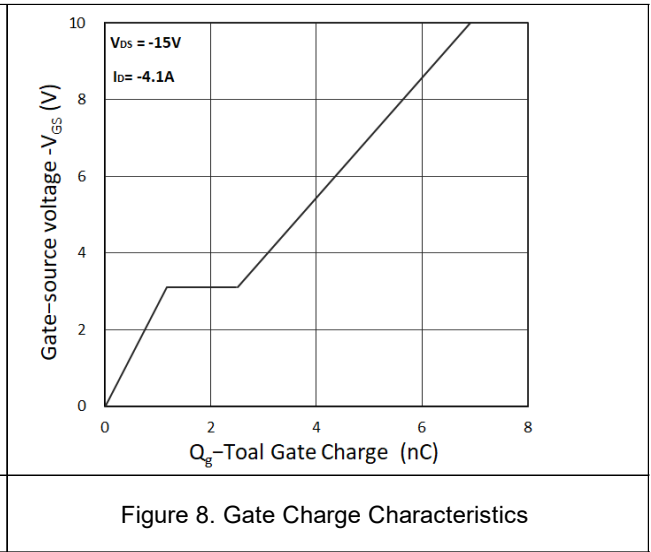
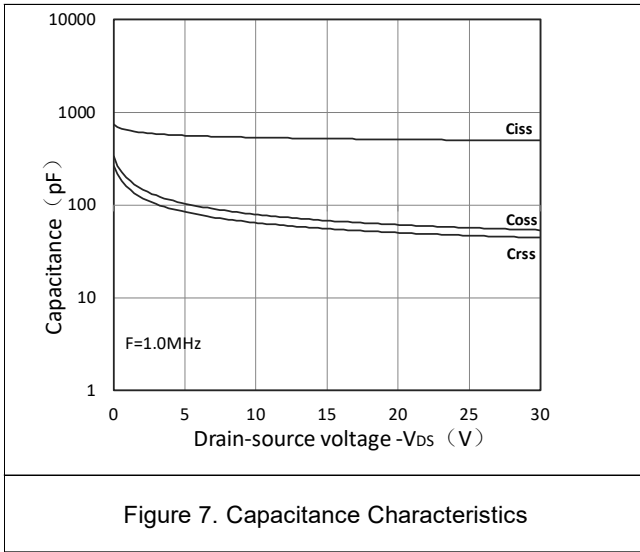
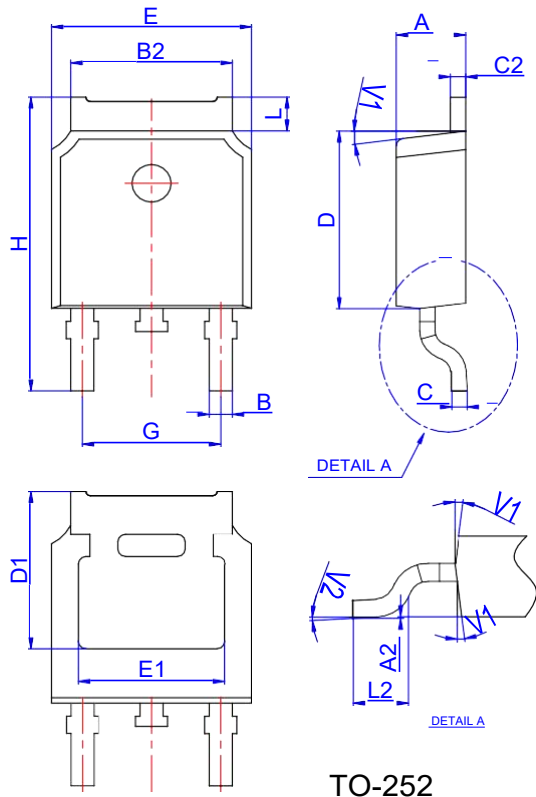


Figure 3. Forward Characteristics of Reverse


 Figure 4. $R_{DS(ON)}$ vs. V_{GS}

 Figure 5. $R_{DS(ON)}$ vs. I_D

 Figure 6. Normalized $R_{DS(ON)}$ vs. Temperature

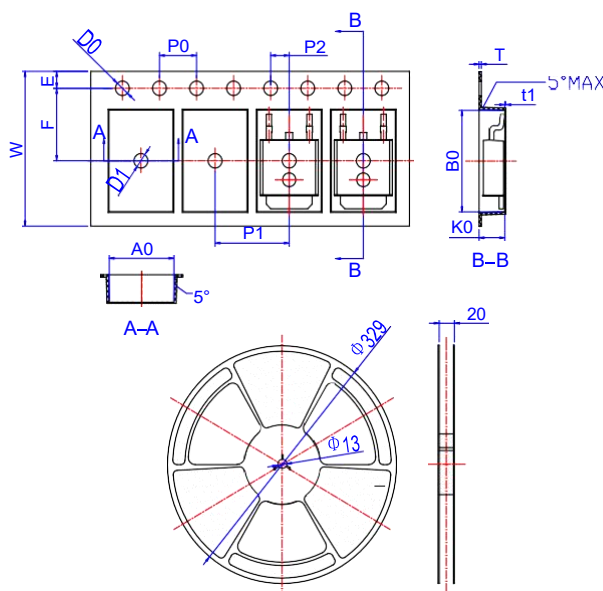


Package Mechanical Data TO 252



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

Reel Specification-TO-252-4R



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	15.90	16.00	16.10	0.626	0.630	0.634
E	1.65	1.75	1.85	0.065	0.069	0.073
F	7.40	7.50	7.60	0.291	0.295	0.299
D0	1.40	1.50	1.60	0.055	0.059	0.063
D1	1.40	1.50	1.60	0.055	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.90	2.00	2.10	0.075	0.079	0.083
A0	6.85	6.90	7.00	0.270	0.271	0.276
B0	10.45	10.50	10.60	0.411	0.413	0.417
K0	2.68	2.78	2.88	0.105	0.109	0.113
T	0.24		0.27	0.009		0.011
t1	0.10			0.004		
10P0	39.80	40.00	40.20	1.567	1.575	1.583