WANSEMI
万代半导体

WP30P80

Enhancement Mode P-Channel Power MOSFET

TO-252/PMOS/-30V/±20V/-1.6V/-80A/6.0mΩ

Rev1.0

-30V, 6.0mΩ, -80A, Single P-Channel

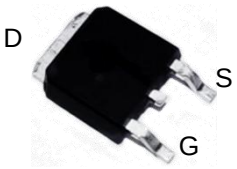
1.Features

- 100% EAS Guaranteed
- Green Device Available
- Super Low Gate Charge
- Excellent Cdv/dt effect decline
- Advanced high cell density Trench technology

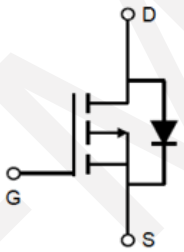
V_{DS}	$R_{DS(on)}$ Typ.	I_D Max.
-30V	6.0mΩ @ -10V	-80A
	9.0mΩ @ -4.5V	

2.Applications

- Load Switching



TO-252
Pin Description



Schematic Diagram

3.Package Marking and Ordering Information

Part no.	Marking	Package	PCS/Reel	PCS/CTN.
WP30P80	WP30P80	TO-252	2500	25000

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

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	V_{DSS}	-30	V
Gate to Source Voltage	V_{GSS}	±20	V
Drain Current (DC)	I_D	-80	A
Drain Current (Pulse), PW≤300μs	I_{DP}	-175	A
Total Dissipation	P_D	31.2	W
Avalanche Energy, Single Pulsed	E_{AS}	31	mJ
Junction Temperature	T_j	150	℃
Storage Temperature	T_{stg}	-55 to +150	℃

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.Thermal Resistance Ratings (Note 2)

Parameter	Symbol	Value	Unit
Junction to case	$R_{\theta JC}$	4	℃/W
Junction to Ambient	$R_{\theta JA}$	43	℃/W

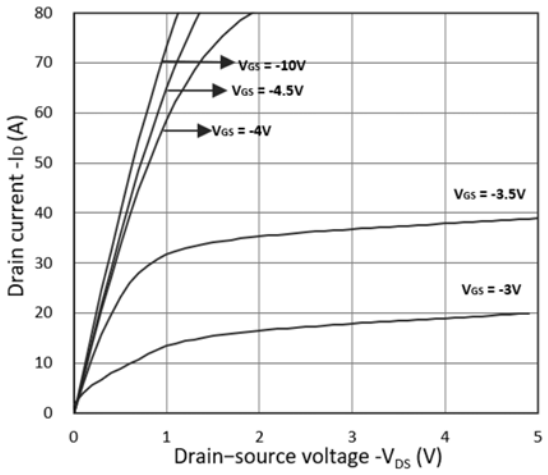
Note 2：When mounted on 1 inch square copper board t ≤ 10sec The value in any given application depends on the user's specific board design.

6.Electrical Characteristics at Ta=25℃ (Note 3)

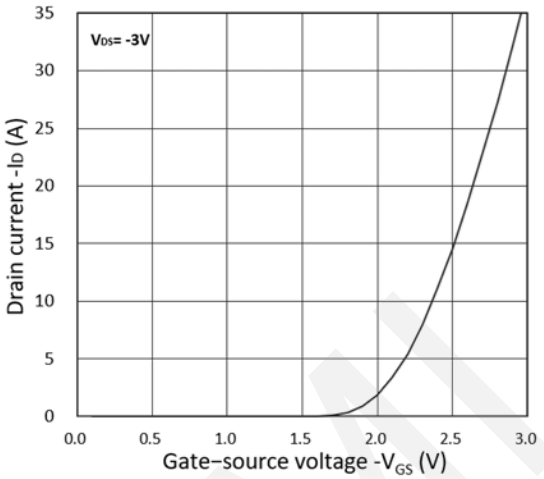
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = -250μA, V_{GS} = 0V	-30	-	-	V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS} = -20V, V_{GS} = 0V	-	-	-1	μA
Gate to Source Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{SS} = 0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=-250μA	-1.0	-1.6	-2.5	V
Static Drain to Source On-State Resistance	$R_{DS(on)}$	I_D = -12A, V_{GS} = -10V	-	6	8.8	mΩ
		I_D = -8A, V_{GS} = -4.5V	-	9	14	mΩ
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-15V, Frequency=1.0MHz	-	4320	-	pF
Output Capacitance	C_{oss}		-	529	-	pF
Reverse Transfer Capacitance	C_{rss}		-	487	-	pF
Turn-ON Delay Time	$t_{d(on)}$	V_{DS} = -15V, I_D = -15A V_{GS} = -10V, R_G = 2.5Ω	-	18.9	-	ns
Rise Time	t_r		-	15.7	-	ns
Turn-OFF Delay Time	$t_{d(off)}$		-	64.8	-	ns
Fall Time	t_f		-	36.5	-	ns
Total Gate Charge	Q_g	V_{DS} = -15V, V_{GS} =-10V, I_D = -15A	-	45	-	nC
	Q_{gs}		-	8.5	-	nC
	Q_{gd}		-	12.8	-	nC
Diode Forward Voltage	V_{FSD}	I_S =-1A, V_{GS} = 0V	-	-	-1	V

Note 3：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.

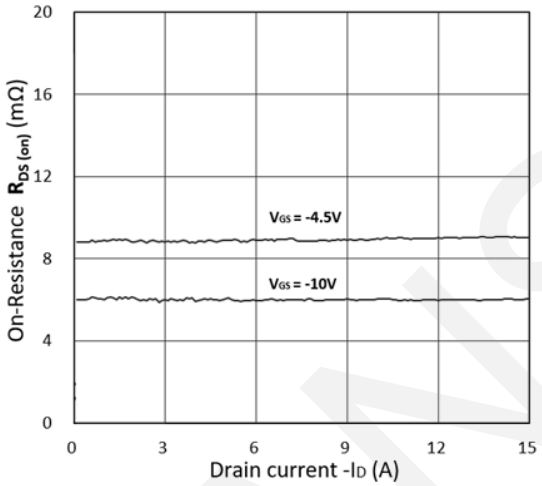
7.Typical electrical and thermal characteristics



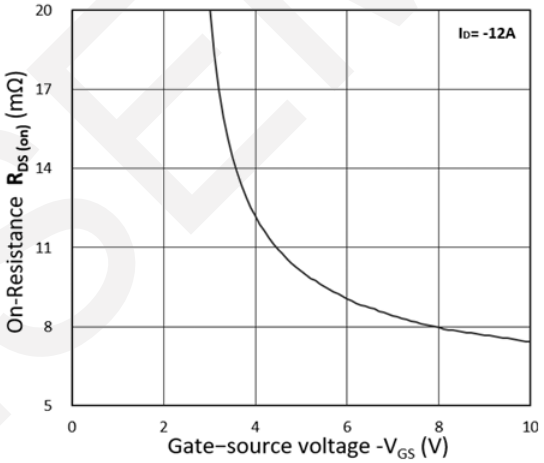
Output Characteristics



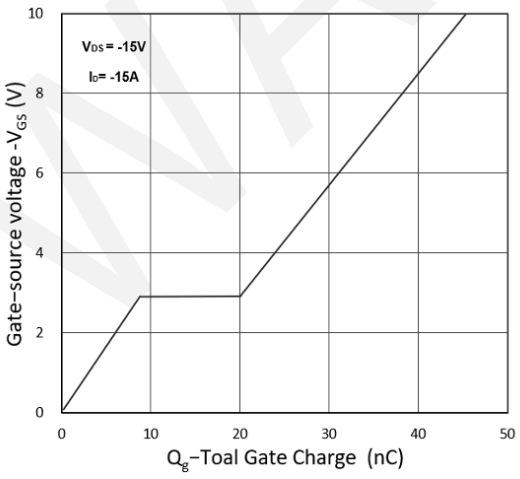
Transfer Characteristics



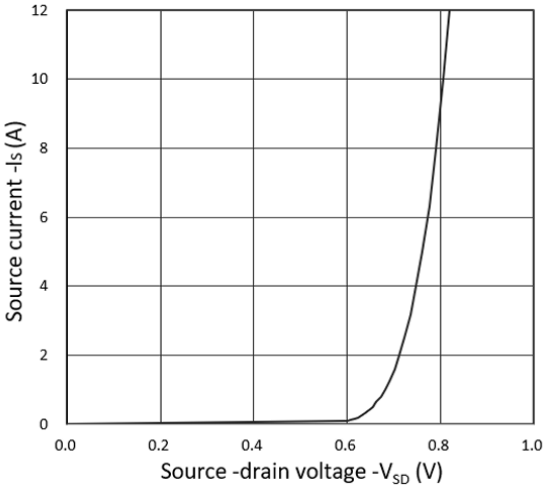
Rdson-Drain Current



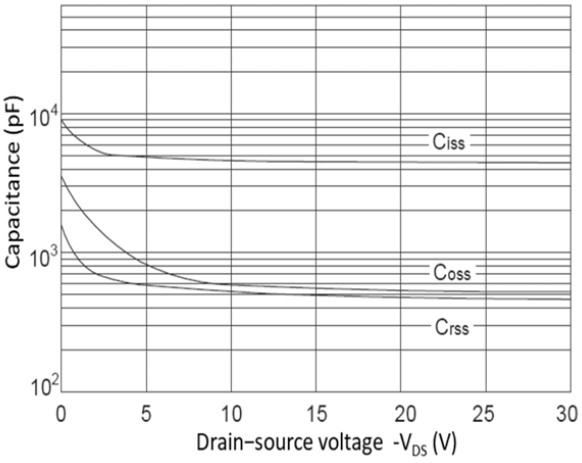
Rdson-V_{GS}



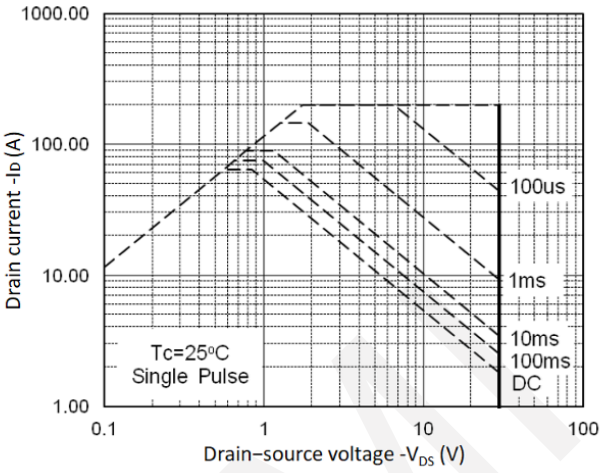
Gate Charge



Source-Drain Voltage

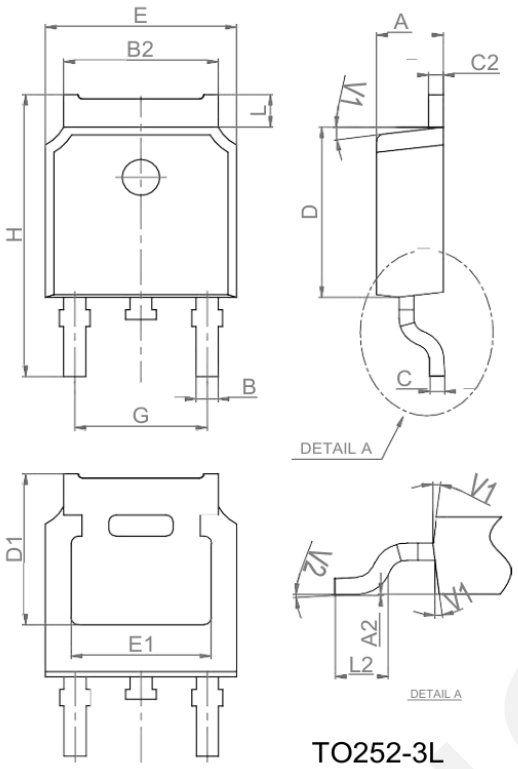


Capacitance vs Vds



Safe Operation Area

8.Package Dimensions



TO252-3L

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°

9. Important Notice

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