Features

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

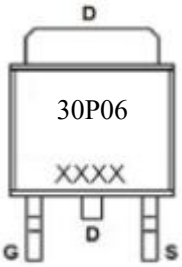
Bvdss	Rdson	ID
-60V	24mΩ	-30A

Application

RoHS

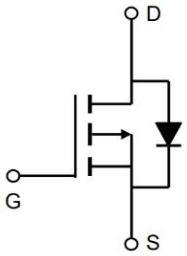
- PWM applications
- Load Switch
- Power management

Package



Marking and pin assignment

TO252-3L top view



Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
30P06	30P06	TO252-3L	2500

Absolute Maximum Ratings (T_A=25℃unless otherwise specified noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1]	I_D@T_C=25℃	-30	A
	I_D@T_C=100℃	-22.5	A
Pulsed Drain Current[2]	I_{DM}	-144	A
Single Pulse Avalanche Energy[3]	EAS	196	mJ
Avalanche Current	I_{AS}	-	A
Total Power Dissipation	P_D@T_C=25℃	79	W
Storage Temperature Range	T_{STG}	-55 ~ 175	℃
Operating Junction Temperature Range	T_J	-55 ~ 175	℃

Thermal Resistance Ratings

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance from Junction-to-Ambient	$R_{\theta JA}$	--	--	℃/W
Thermal Resistance from Junction-to-Case[1]	$R_{\theta JC}$	--	1.9	℃/W

Ordering Information

Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	D	S	
HL30P06	TO252-3L	1	2	3	Tape Reel

Electrical Characteristics (T_J=25℃unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=-250μA	-60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V,V_{GS}=0V	-	-	-1	uA
Gate-body Leakage current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-1.0	-1.8	-2.5	V
Drain-Source On-Resistance[2]	$R_{DS(ON)}$	V_{GS}=-10V,I_D=-15A	-	24	29	mΩ
		V_{GS}=-4.5V,I_D=-10A	-	30.4	39	
Forward Transconductance	gfs	V_{DS}=-5V,I_D=-15A	-	35	-	S
Input Capacitance	C_{lss}	V_{DS}=-25V,V_{GS}=0V, f=1MHz	-	4026	-	pF
Output Capacitance	C_{oss}		-	134	-	
Reverse Transfer Capacitance	C_{rss}		-	98	-	
Total Gate Charge	Q_g	V_{GS}=-10V,I_D=-20A, V_{DS}=-30V	-	68	-	nC
Gate-Source Charge	Q_{gs}		-	10.5	-	
Gate-Drain Charge	Q_{gd}		-	13	-	
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=-30V,R_G=3Ω, R_L=1.5Ω,V_{GS}=-10V	-	12.2	-	nS
Rise Time	t_r		-	10	-	
Turn-Off Delay Time	$t_{d(off)}$		-	64	-	
Fall Time	t_f		-	14	-	
Source-Drain Current (Body Diode)	I_{SD}	-	-	-	-30	A
Diode Forward Voltage[3]	V_{SD}	V_{GS}=0V,I_S=-15A	-	-	-1.2	V
Reverse Recovery Time	trr	I_F=-20A,di/dt=100A/μs	-	26	-	ns
Reverse Recovery Charge	Qrr	I_F=-20A,di/dt=100A/μs	-	29	-	nC

Notes:

1.Repetitive Rating: Pulse width limited by maximum junction temperature.

2.EAS condition: T_J=25℃,V_{DD}=40V,V_G=-10V, Rg=25Ω, L=0.5mH.

3.Repetitive Rating: Pulse width limited by maximum junction temperature.

Typical Characteristics

Figure 1. Output Characteristics

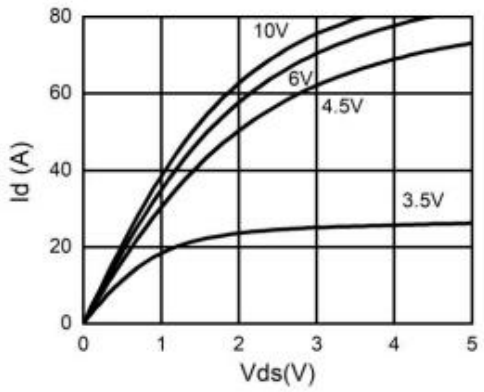


Figure 2. Transfer Characteristics

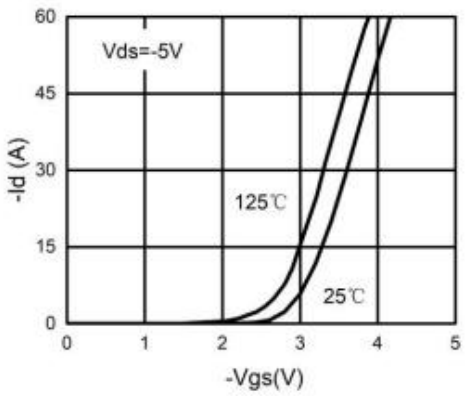


Figure 3. Power Dissipation

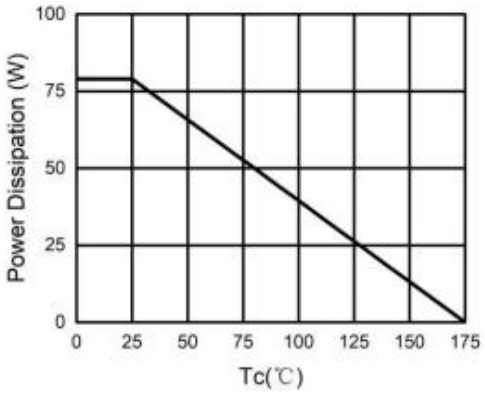


Figure 4. Drain Current

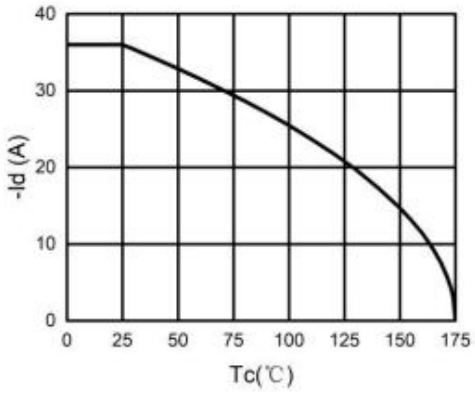


Figure 5. BV_{DSS} vs Junction Temperature

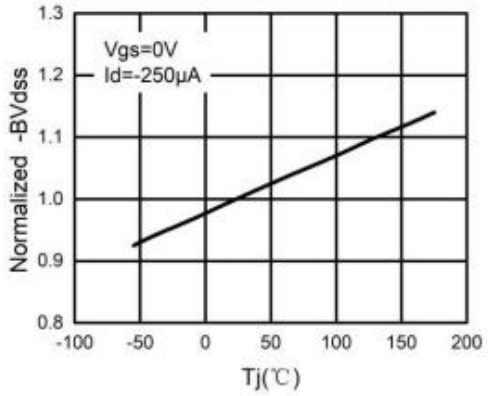


Figure 6. $R_{DS(ON)}$ vs Junction Temperature

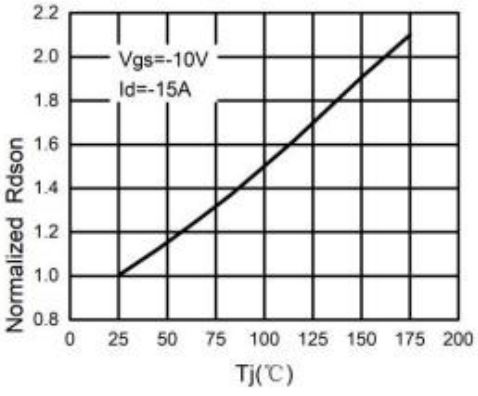


Figure 7. Gate Charge Waveforms

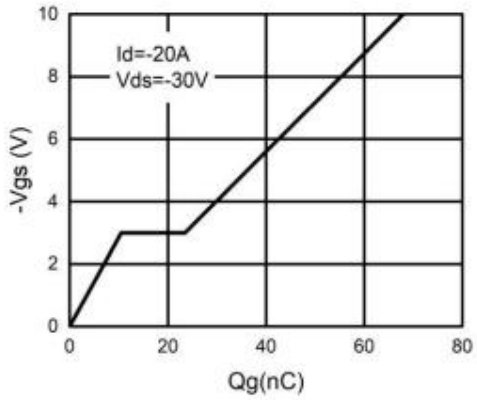


Figure 8. Capacitance

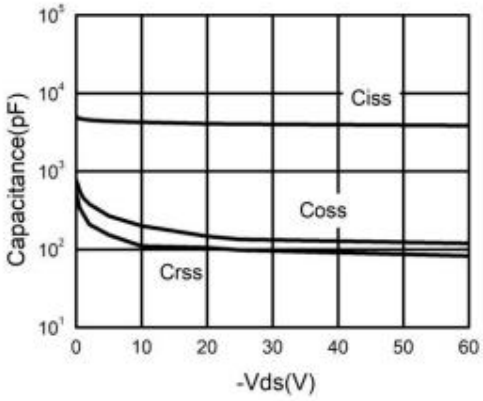


Figure 9. Body-Diode Characteristics

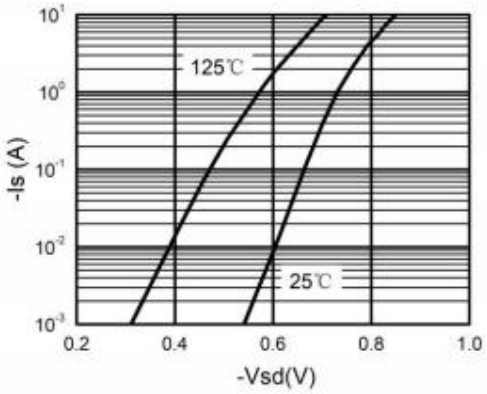
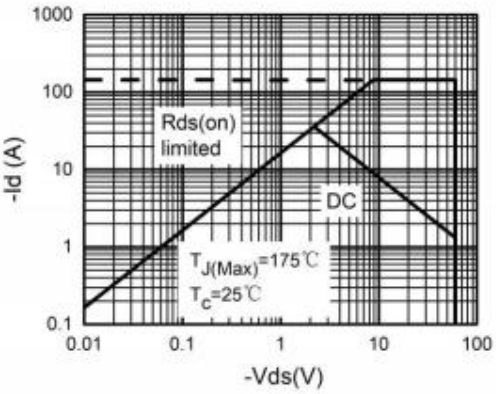
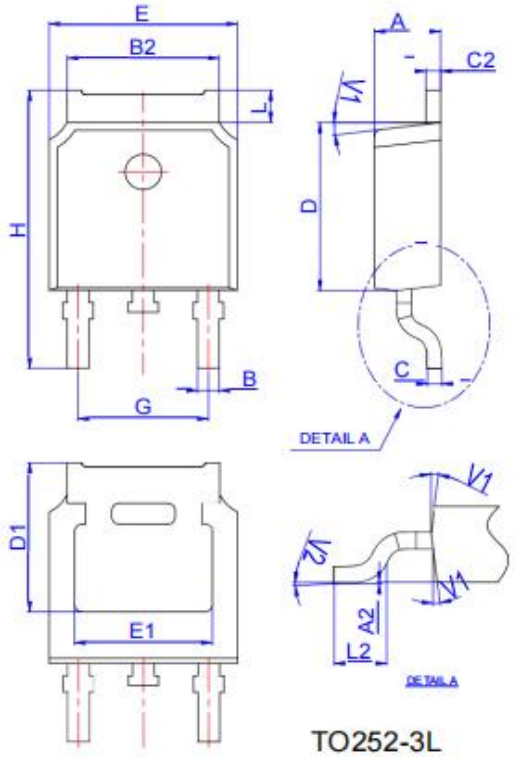


Figure 10. Maximum Safe Operating Area



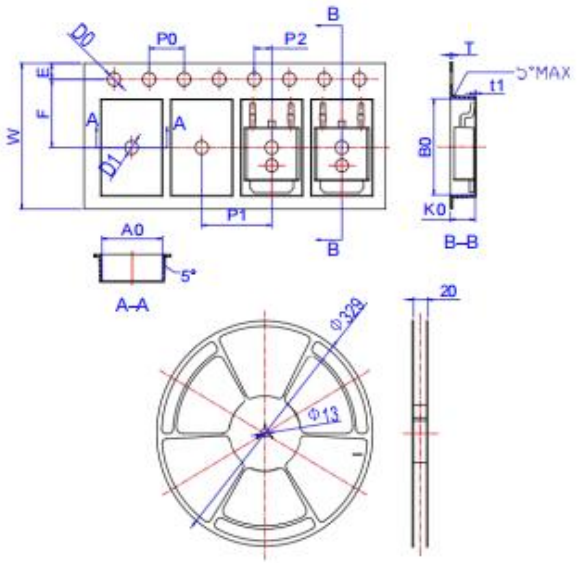
Package Mechanical Data TO252-3L



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°

Reel Spectification-TO252-3L



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

Important Notice and Disclaimer

HL Microelectronics reserves the right to make changes to this document and its products and specifications at any time without notice.
Customers should obtain and confirm the latest product information and specifications before final design, purchase or use.

HL Microelectronics makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, not does HL Microelectronics assume any liability for application assistance or customer product design.

HL Microelectronics does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application.

No license is granted by implication or otherwise under any intellectual property rights of HL Microelectronics.

HL Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of HL Microelectronics.