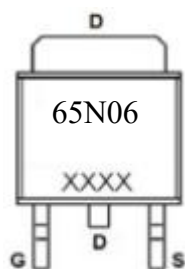


**Features**

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

Bvdss**60V****Rdson****6.8mΩ****ID****65A****Application**

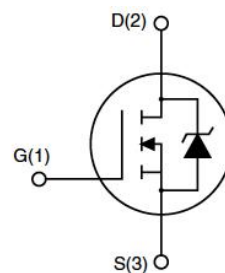
- PWM applications
- Load Switch
- Power management

RoHS**Package**

Marking and pin assignment



TO252-3L top view



Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
65N06	65N06	TO252-3L	2500

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

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current, $V_{GS}@10\text{V}$	$T_C=25^{\circ}\text{C}$	I_D	65	A
	$T_C=100^{\circ}\text{C}$		45	A
Pulsed Drain Current ¹		I_{DM}	260	A
Avalanche Current		I_{AS}	-	A
Single Pulsed Avalanche Energy		EAS	300	mJ
Power Dissipation		P_D	75	W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 ~ 175	$^{\circ}\text{C}$

Thermal Resistance Ratings

Parameter	Symbol	Value	Max.	Unit
Thermal Resistance Junction-Case	$R_{\theta JC}$	-	2	$^{\circ}\text{C/W}$



Ordering Information

Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	D	S	
HL65N06	TO-252	1	2	3	Tape Reel

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =250uA, V _{GS} =0V	60	-	-	V	
Drain-Source Leakage Current	I _{DSS}	V _{DS} =64V, V _{GS} =0V	-	-	1	uA	
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA	
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250uA	2	-	4	V	
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =40A	-	6.8	8.2	mΩ	
		-	-	-	-		
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz	-	2873	-	pF	
Output Capacitance	C _{oss}		-	252	-		
Reverse Transfer Capacitance	C _{rss}		-	205	-		
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =15A	15	-	-	S	
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =50V, I _D =40A	-	56	-	nC	
Gate-Source Charge	Q _{gs}		-	10	-		
Gate-Drain Charge	Q _{gd}		-	16	-		
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V, V _{DD} =30V, I _D =2A, R _G =2.5Ω, R _L =15Ω	-	14.5	-	ns	
Turn-On Rise Time	t _r		-	24	-		
Turn-Off Delay Time	t _{r(off)}		-	45	-		
Turn-Off Fall Time	t _f		-	22	-		
Maximum Continuous Drain to Source Diode Forward Current			I _S	-	-	65	A
Maximum Pulsed Drain to Source Diode Forward Current			I _{SM}	-	-	260	A
Diode Forward Voltage ¹	V _{GS} =0V, I _S =40A		V _{SD}	-	0.9	1	V
Reverse Recovery Time ¹	I _F =75A, dl/dt=100A/μs		t _{rr}	-	22	-	ns
Reverse Recovery Charge ¹			Q _{rr}	-	27	-	nC

Notes:

1. RPulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 1.5\%$, $R_G=25\Omega$, Starting $T_J=25^{\circ}\text{C}$.



Typical Performance Characteristics

Figure1. Output Characteristics

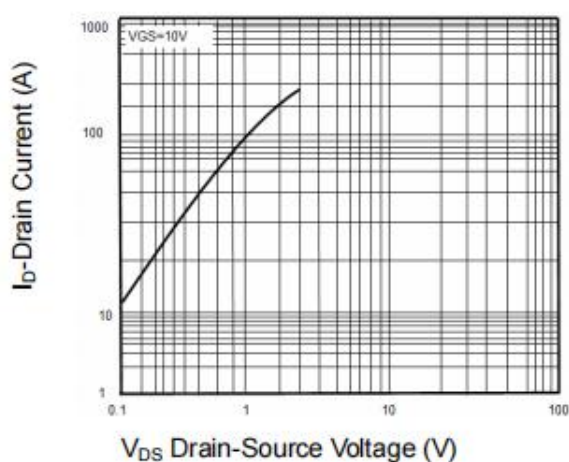


Figure2. Transfer Characteristics

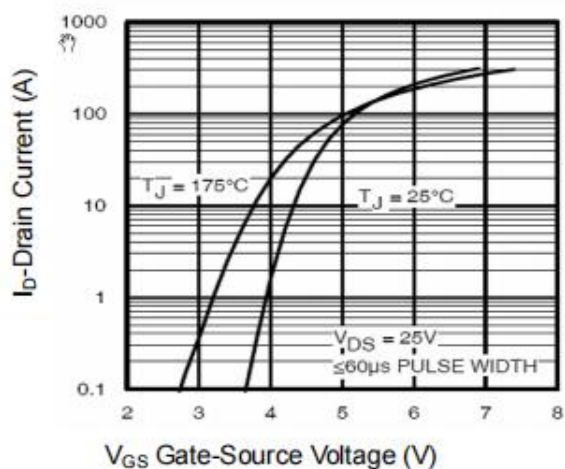


Figure3. BV_{DSS} vs Junction Temperature

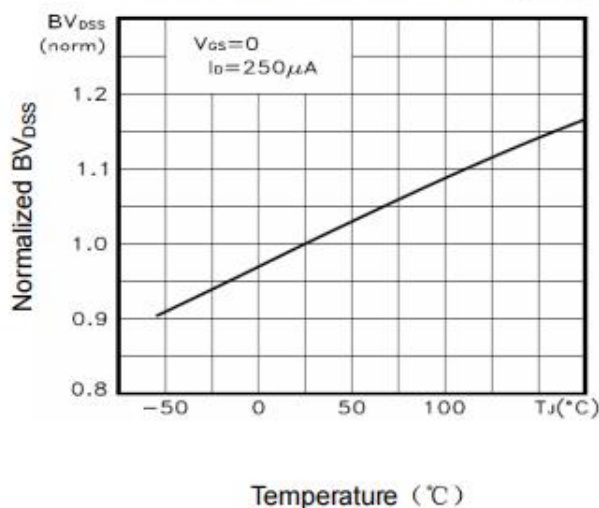


Figure4. ID vs Junction Temperature

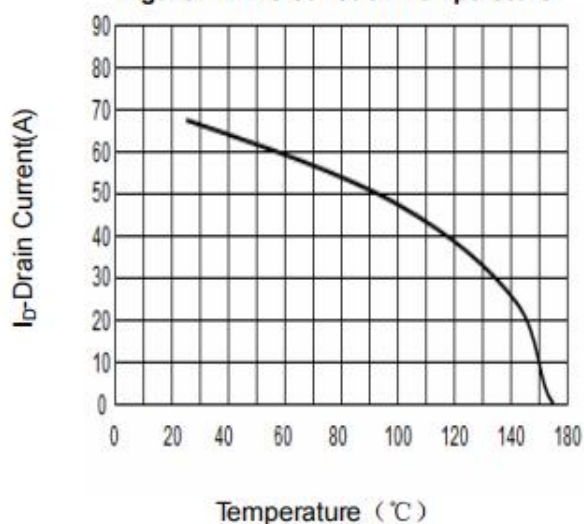


Figure5. VGS(th) vs Junction Temperature

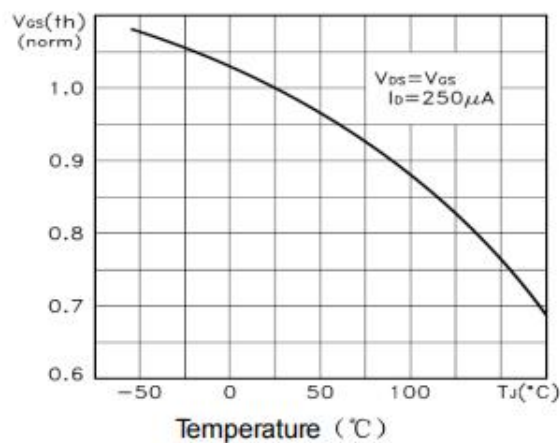


Figure6. Rdson Vs Junction Temperature

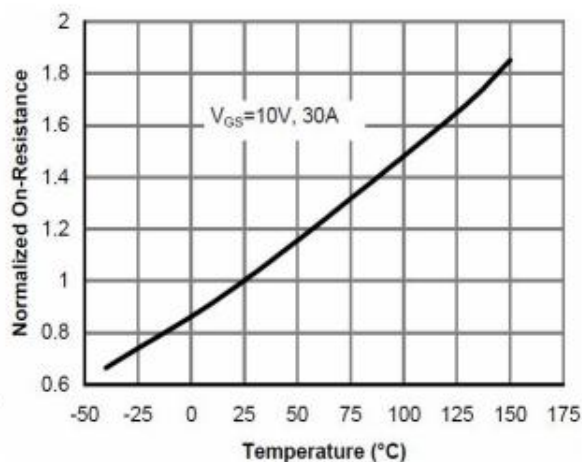




Figure7. Gate Charge

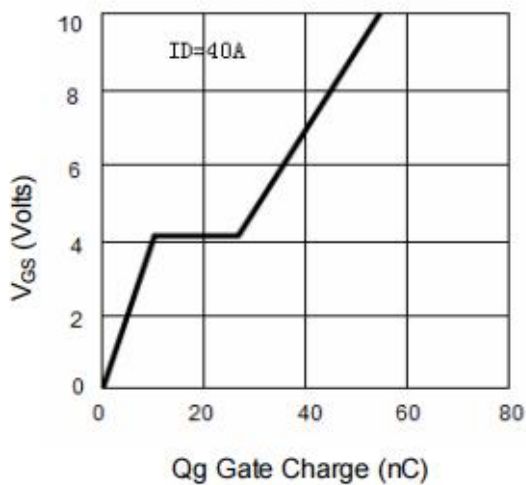


Figure8. Capacitance vs Vds

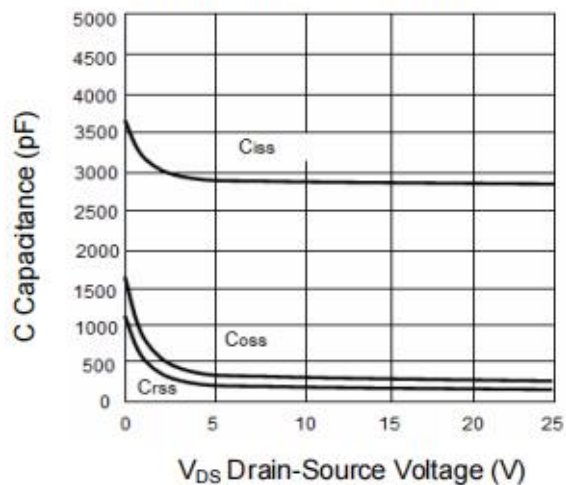


Figure9. Source- Drain Diode Forward

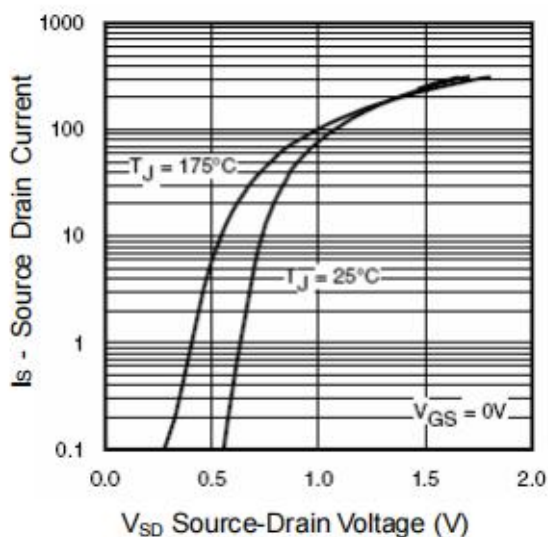


Figure10. Safe Operation Area

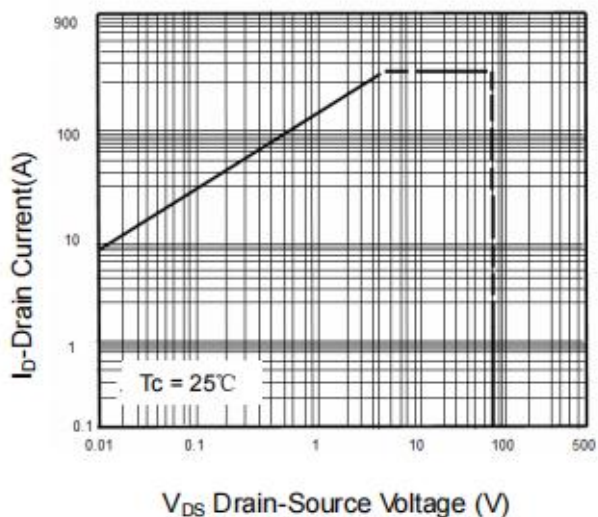
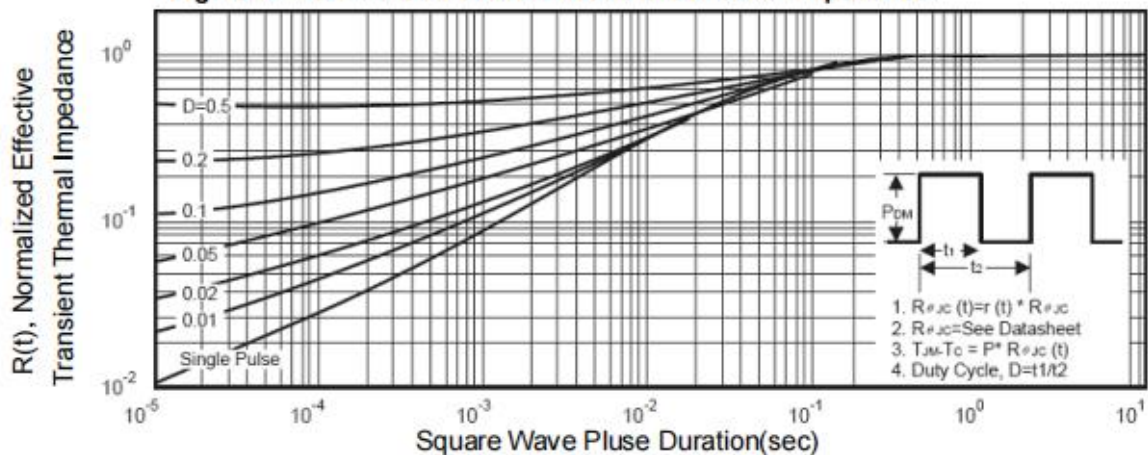
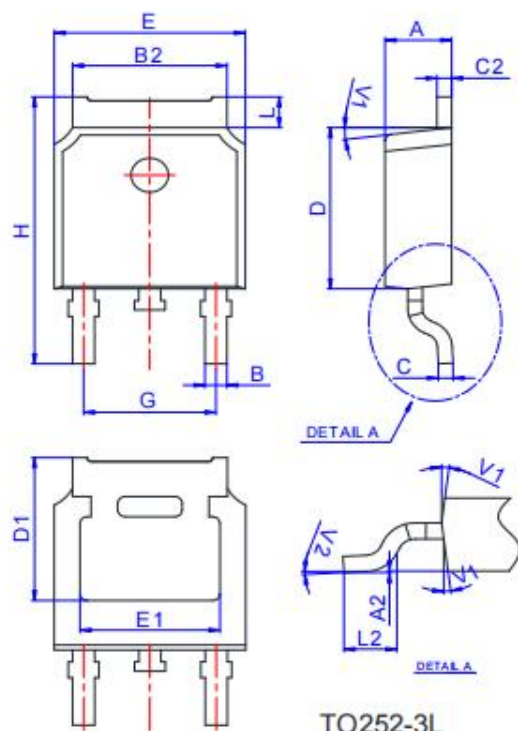


Figure11. Normalized Maximum Transient Thermal Impedance

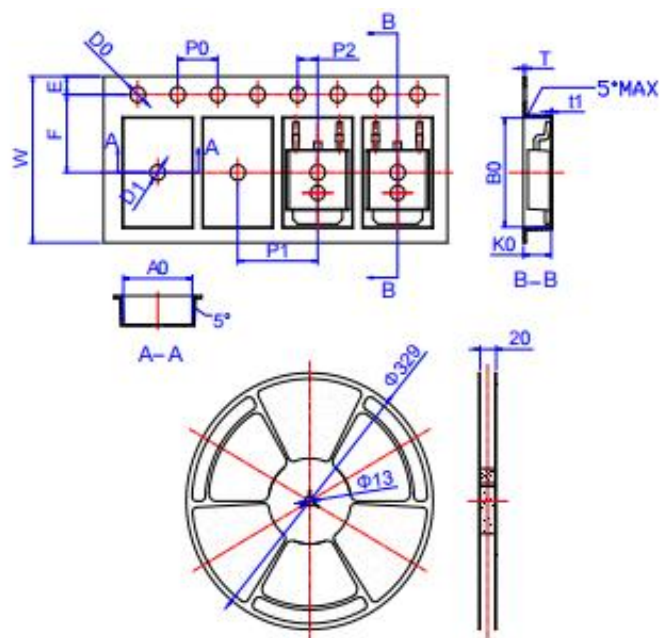




Package Mechanical Data TO252-3L



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°



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



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