Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
650V	0.37Ω@10V	18A

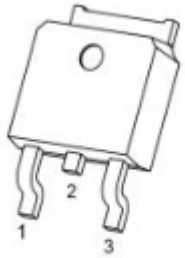
Feature

- Fast Switching
- Improved dv/dt capability
- 100% Single Pulse avalanche energy Test

Applications

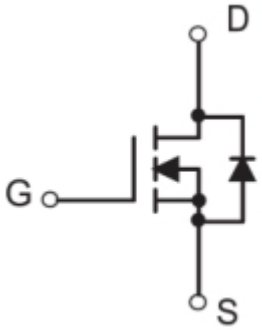
- DC Motor Control and Class D Amplifier
- Uninterruptible Power Supply (UPS)

Package

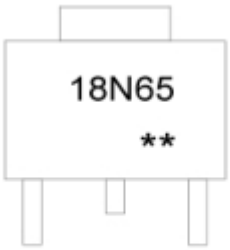


TO-252-2L(G:1 D:2 S:3)

Circuit diagram



Marking



18N65 : Product code
** : Week code.

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current(TC = 25℃)	I_D	18	W
Pulsed Drain Current	I_{DM}	72	A
Single Pulse Avalanche Energy [3]	E_{AS}	500	mJ
Power Dissipation (T_C = 25℃)	P_D	65	W
Thermal Resistance Junction- Case[1]	$R_{\theta JC}$	1.92	℃/ W
Operating and Storage Temperature Range	T_J, T_{STG},	-55~ +150	℃

Electrical characteristics

(T_A=25℃, unless otherwise noted)

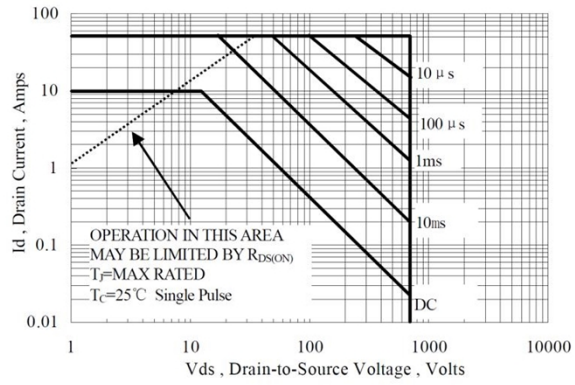
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS} = 0V, I_D =250μA	650			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =650V,V_{GS} = 0V , T_J=25℃			1	uA
Gate-body leakage current	I_{GSS}	V_{GS} =±30V , V_{DS}=0V			±100	uA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2		4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =5A		0.37	0.46	Ω
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz		2442		pF
Output Capacitance	C_{oss}			190		
Reverse Transfer Capacitance	C_{rss}			14		
Total Gate Charge(4.5V)	Q_g	V_{DS}=520V, I_D=18A, V_{GS}=10V		42		nC
Gate-Source Charge	Q_{gS}			12		
Gate-Drain Charge	Q_{gd}			16.3		
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	V_{DS}=15V, I_D=10A, R_{GEN}=1.8Ω, V_{GS}=4.5V		11		nS
Rise Time	T_r			120		
Turn-Off Delay Time	$T_{d(off)}$			25		
Fall Time	T_f			60		
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain to Source Diode Forward Current	I_S				130	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}				360	A
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS} = 0V, I_S=20A			1.2	V
Body Diode Reverse Recovery Time	t_{rr}	I_F=60A,dI/dt=100A/μs		56		ns
Body Diode Reverse Recovery Time Charge	Q_{rr}			110		nC

Note :

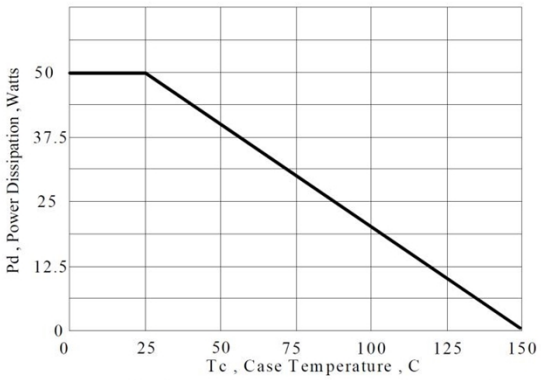
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition: T_j=25℃, V_G=10V,L=30mH,Rg=25Ω,V_{DD}=100V

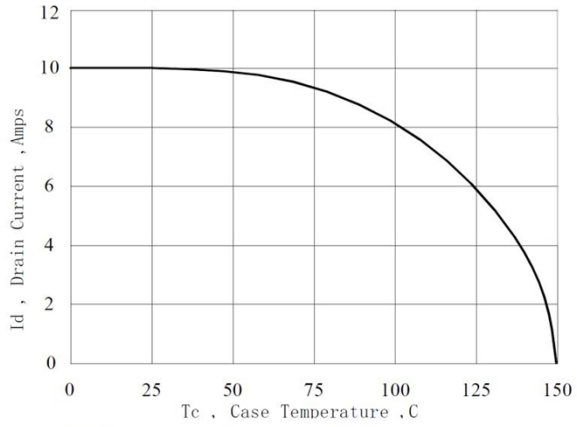
Typical Characteristics



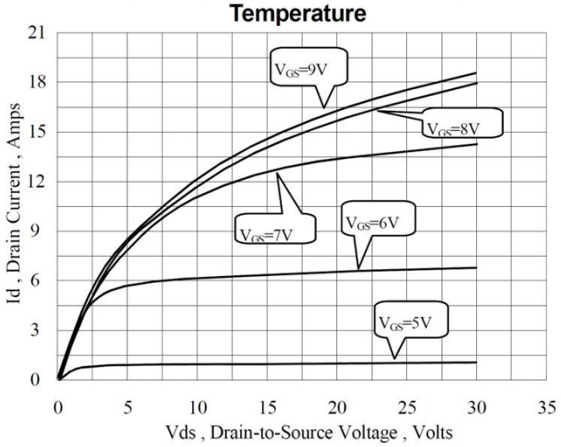
Maximum Forward Bias Safe Operating Area



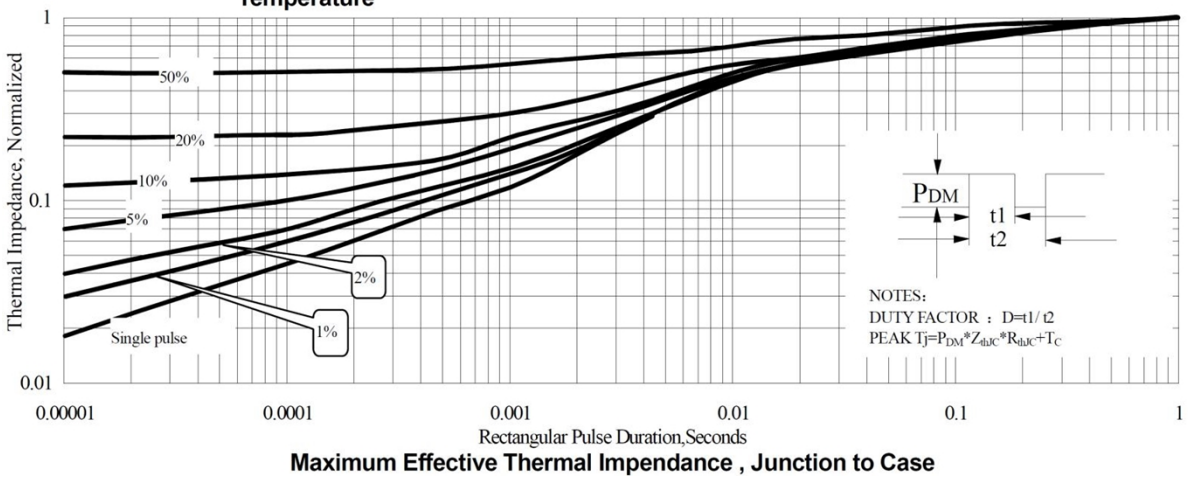
Maximum Power Dissipation vs Case Temperature



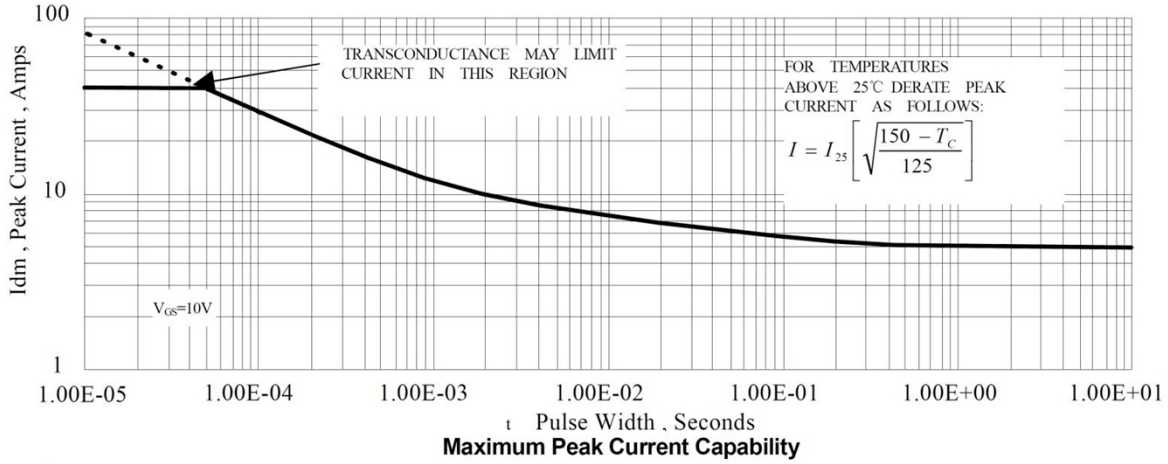
Maximum Continuous Drain Current vs Case Temperature



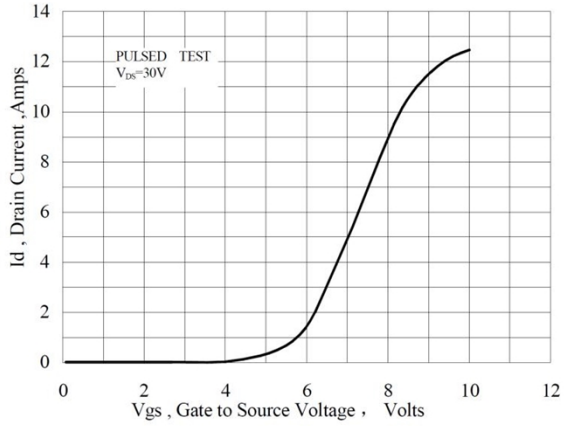
Typical Output Characteristics



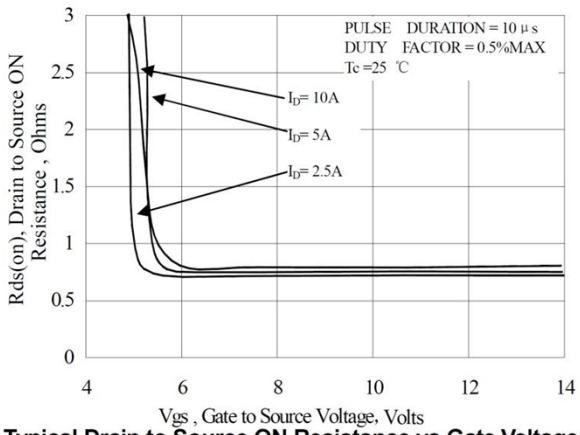
Maximum Effective Thermal Impendance , Junction to Case



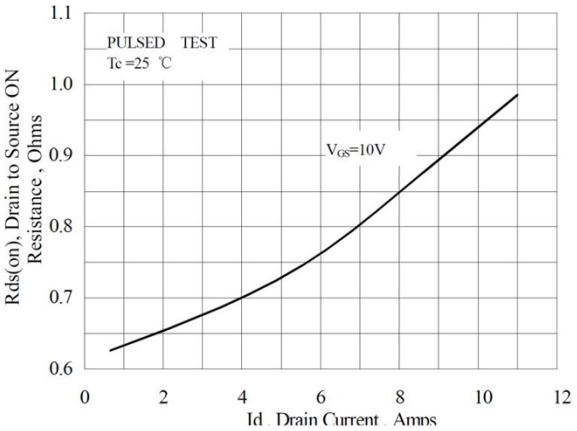
Maximum Peak Current Capability



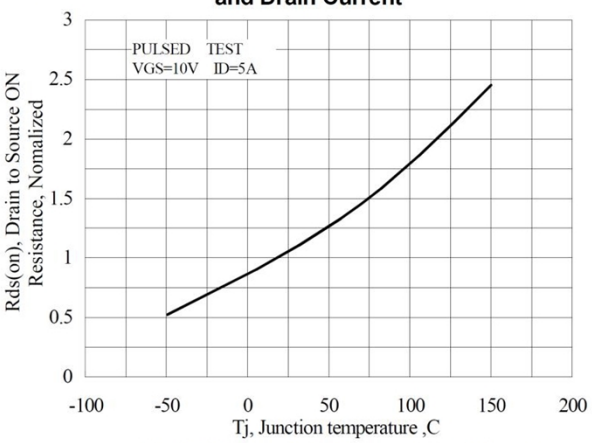
Typical Transfer Characteristics



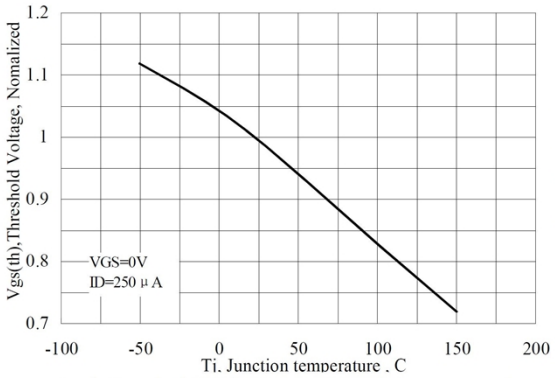
Typical Drain to Source ON Resistance vs Gate Voltage and Drain Current



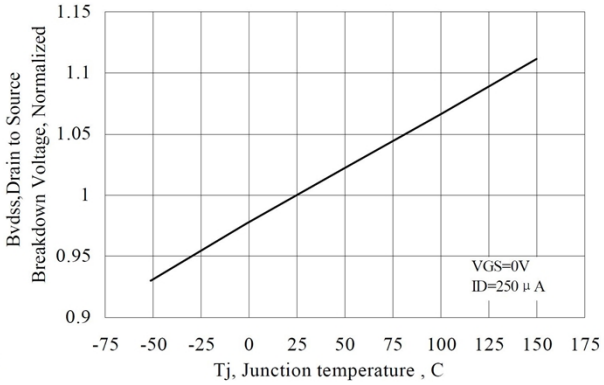
Typical Drain to Source ON Resistance vs Drain Current



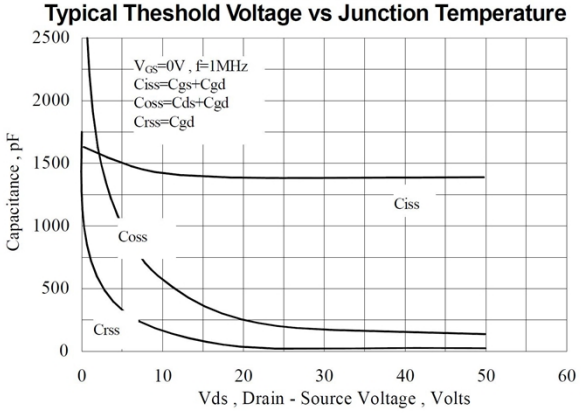
Typical Drian to Source on Resistance vs Junction Temperature



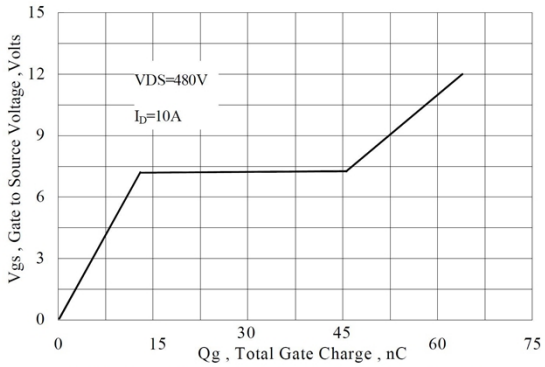
Typical Theshold Voltage vs Junction Temperature



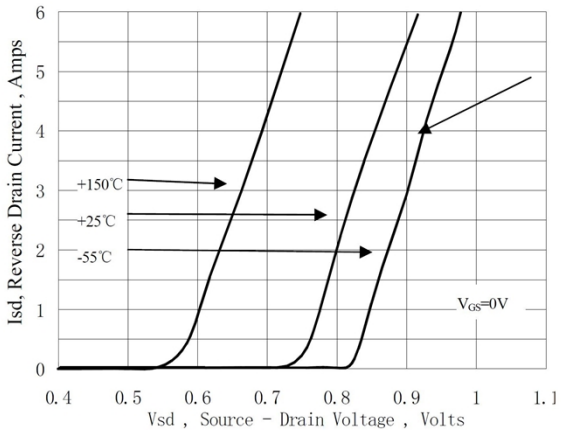
Typical Breakdown Voltage vs Junction Temperature



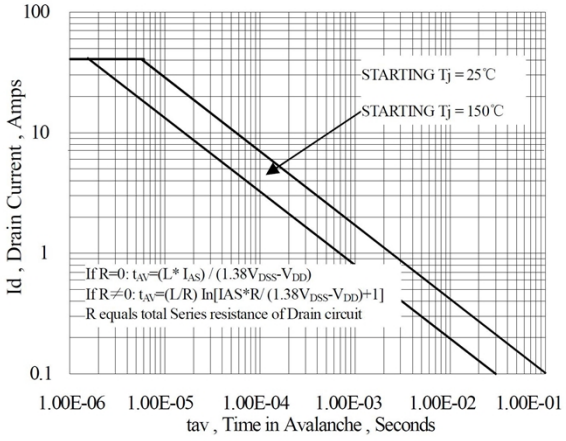
Tpical Capacitance vs Drain to Source Voltage



Typical Gate Charge vs Gate to Source Voltage

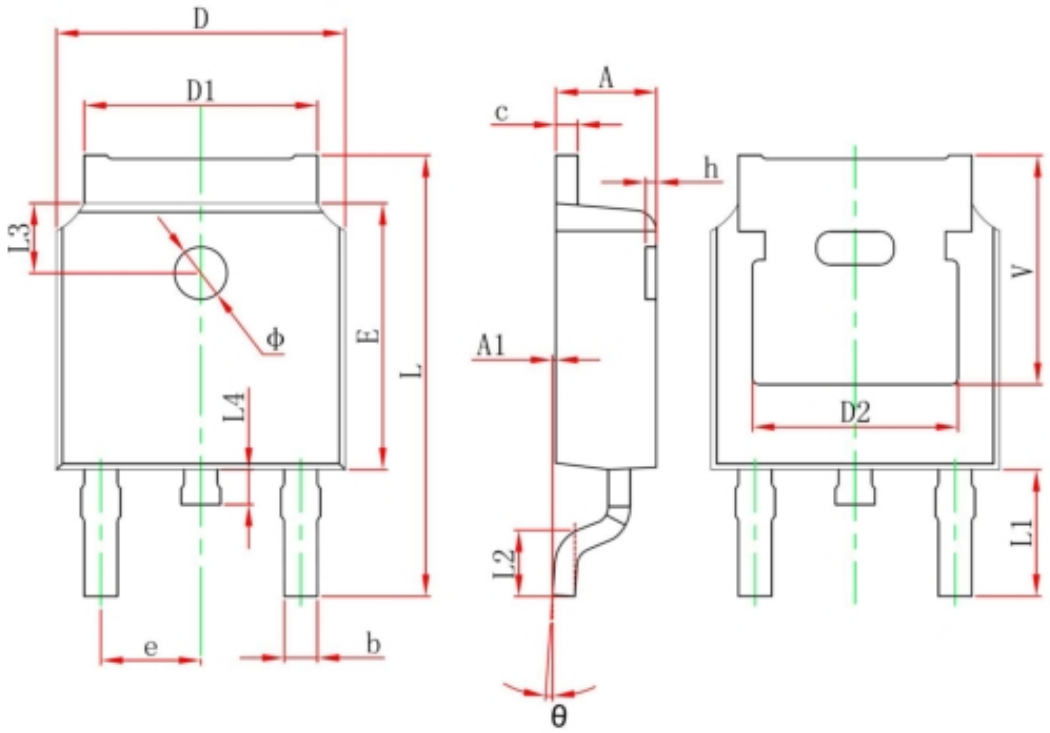


Typical Body Diode Transfer Characteristics



Maximum Forward Bias Safe Operating Area

TO-252 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	