Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	2.7mΩ@10V	120A
	4mΩ@4.5V	

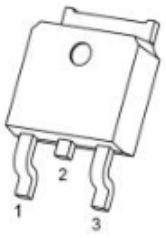
Feature

- Advanced Trench Technology
- Provide Excellent RDS(ON) and Low Gate Charge

Application

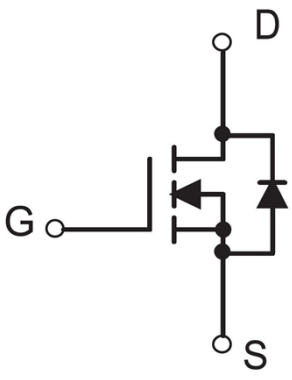
- Load Switch
- PWM Application

Package

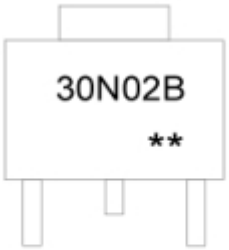


TO-252-2L(G:1 D:2 S:3)

Circuit diagram



Marking



30N02B : Product code
** : Week code.

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current （TC = 25℃）	I_D	120	A
Pulsed Drain Current note[1]	I_{DM}	480	A
Single Pulsed Avalanche Energy note[2]	E_{AS}	450	mJ
Power Dissipation （TC = 25℃）	P_D	120	W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.04	℃/W
Operating and Storage Temperature Range	T_{STG}, T_J	-55 to 150	℃

Electrical characteristics

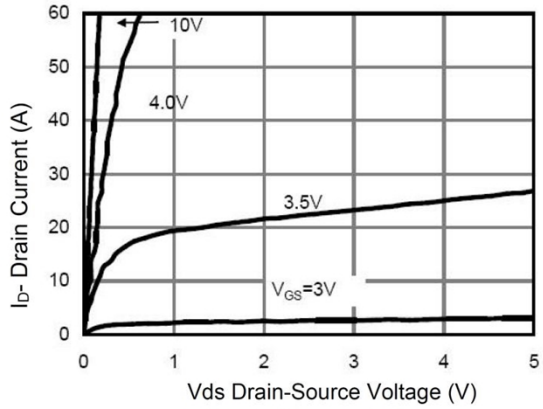
(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =30V,V_{GS} = 0V			1	uA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V , V_{DS}=0V			±100	uA
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.7	2.5	V
Static Drain-Source on-Resistance note3	$R_{DS(on)}$	V_{GS} =10V, I_D =30A		2.7	3.5	mΩ
		V_{GS} =4.5V, I_D =20A		4	5.3	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz		3100		pF
Output Capacitance	C_{oss}			456		
Reverse Transfer Capacitance	C_{rss}			388		
Total Gate Charge	Q_g	V_{DS}=15V, I_D =30A, V_{GS}=10V		75		pF
Gate-Source Charge	Q_{gs}			12		
Gate-Drain Charge	Q_{gd}			18.3		
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=15V, I_D =60A, 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

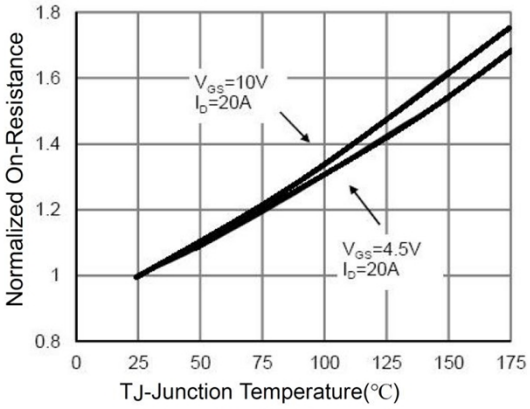
Note：

1. EAS condition: T_j=25℃, V_G=10V,L=0.5mH,Rg=25Ω

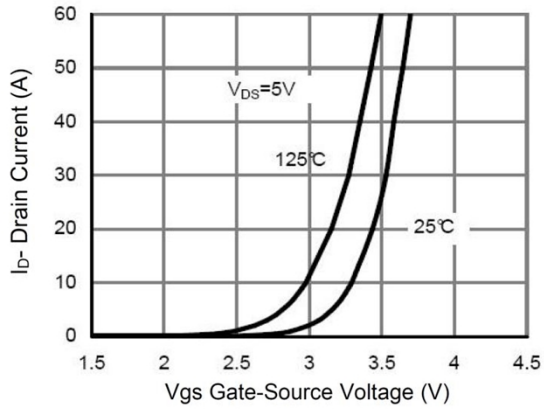
Typical Characteristics



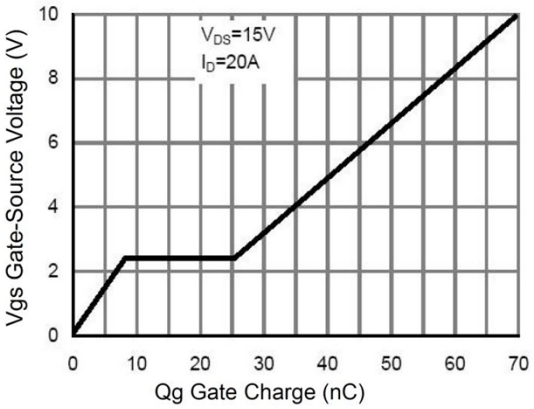
Output Characteristics



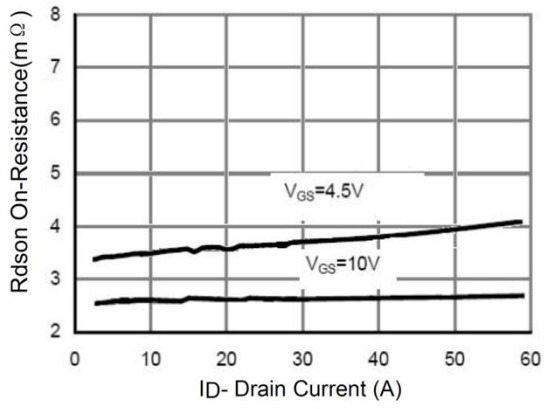
Rdson-JunctionTemperature



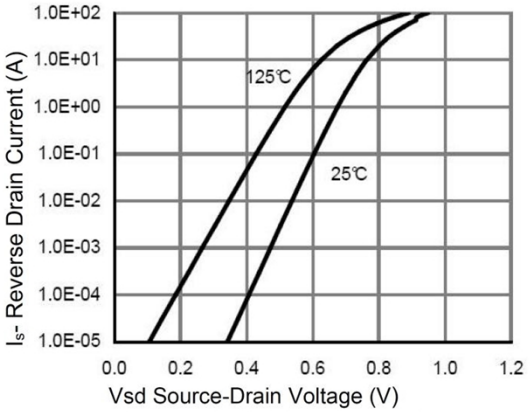
Transfer Characteristics



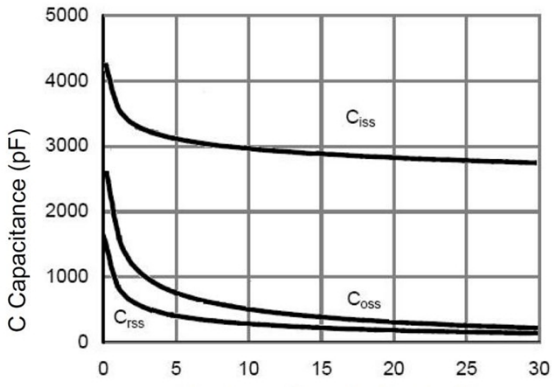
Gate Charge



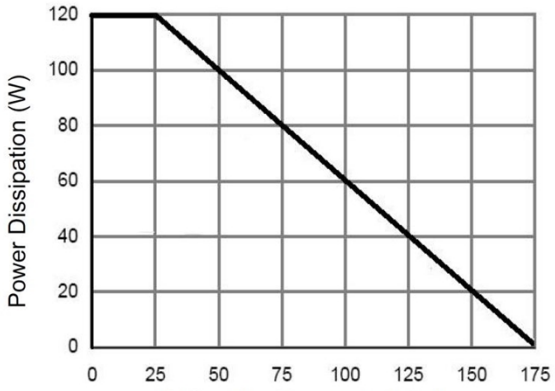
Rdson- Drain Current



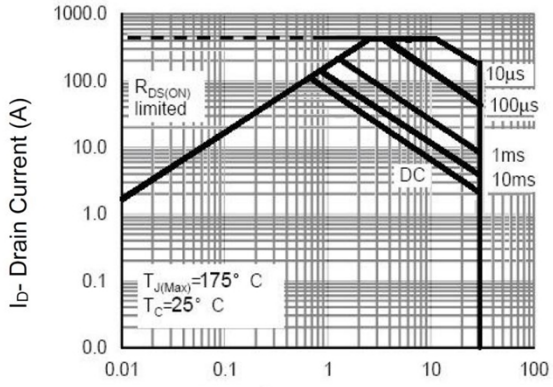
Source- Drain Diode Forward



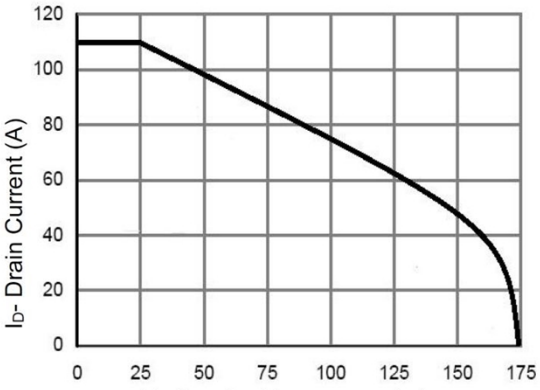
Capacitance vs Vds



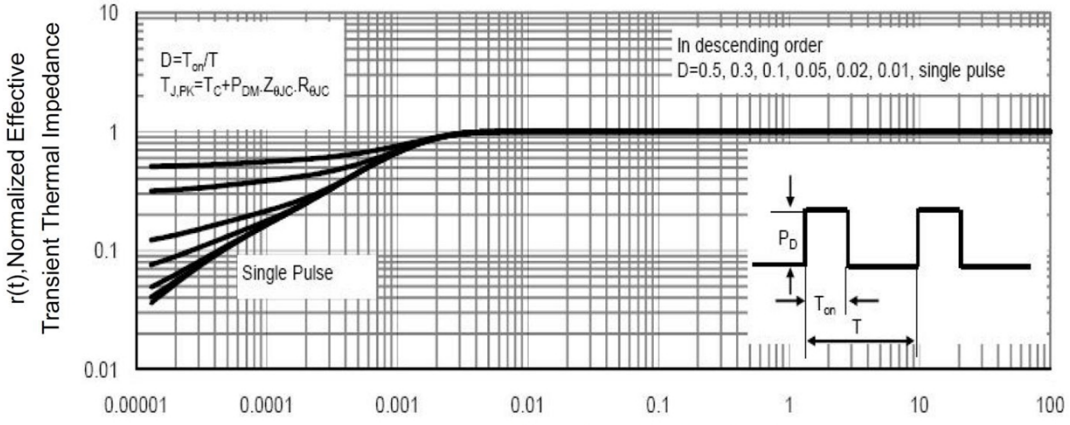
Power De-rating



Safe Operation Area

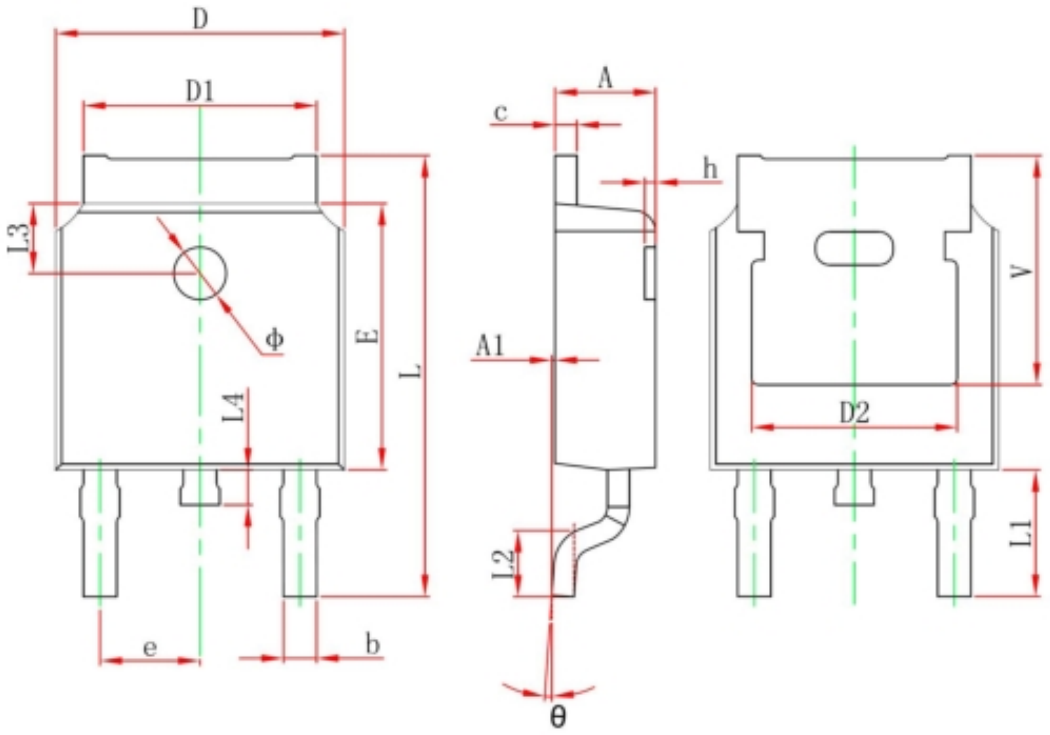


Current De-rating



Normalized Maximum Transient Thermal Impedance

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.	