

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	2m Ω @10V	130A
	3m Ω @4.5V	

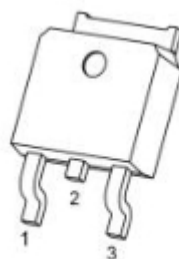
Feature

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

Application

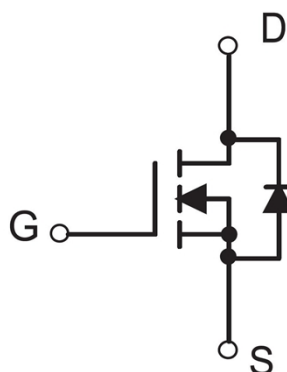
- Load Switch
- PWM Application

Package

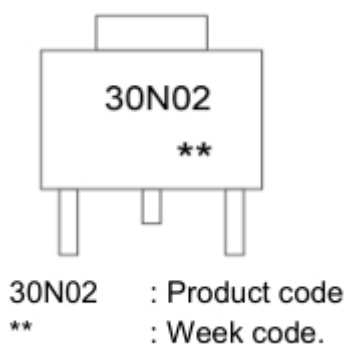


TO-252-2L(G:1 D:2 S:3)

Circuit diagram



Marking



Absolute maximum ratings

($T_a=25^{\circ}\text{C}$ 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°C,Package limit)	I_D	130	A
Continuous Drain Current (TC=25°C,Silicon limit)	I_D	200	A
Pulsed Drain Current ^{note1}	I_{DM}	520	A
Single Pulsed Avalanche Energy ^{note2}	E_{AS}	650	mJ
Power Dissipation (TC=25°C)	P_D	110	W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.36	$^{\circ}\text{C/W}$
Operating and Storage Temperature Range	T_{STG}, T_J	-55 to +150	$^{\circ}\text{C}$

Electrical characteristics

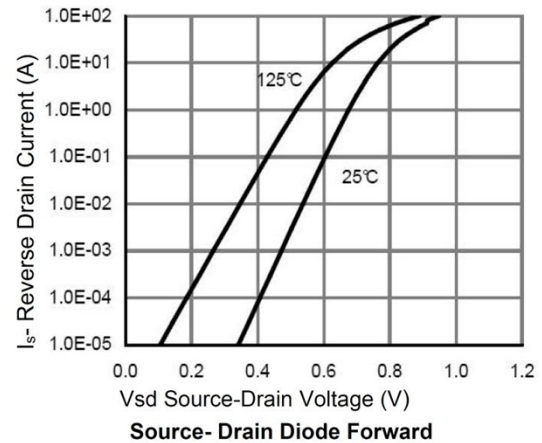
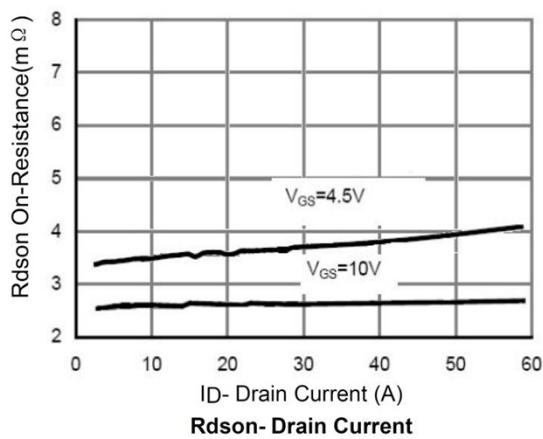
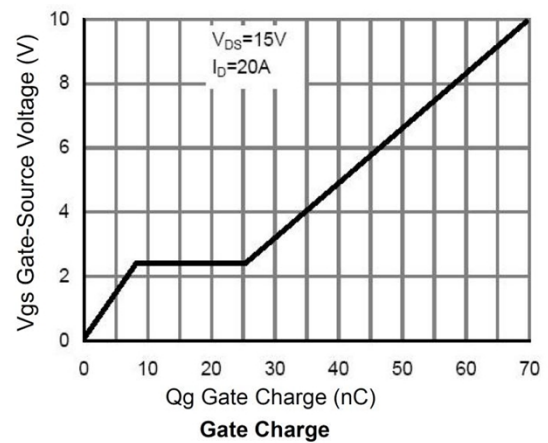
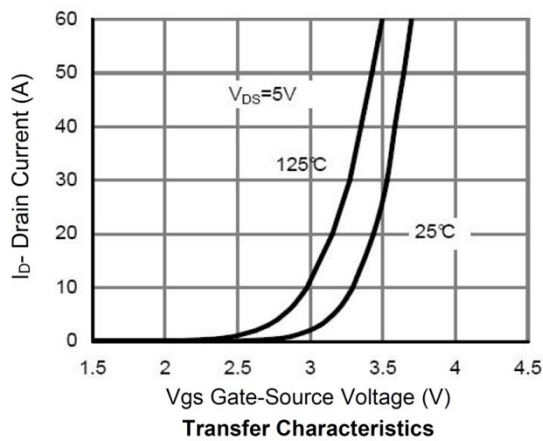
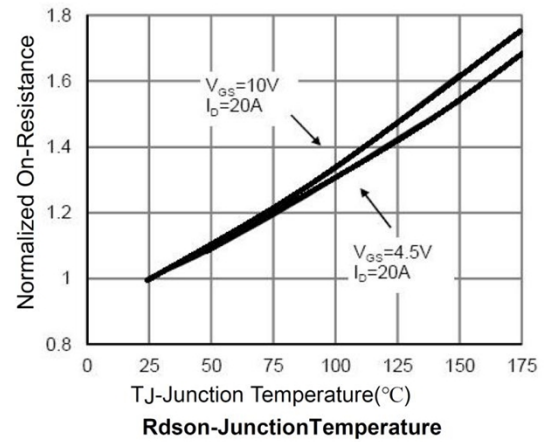
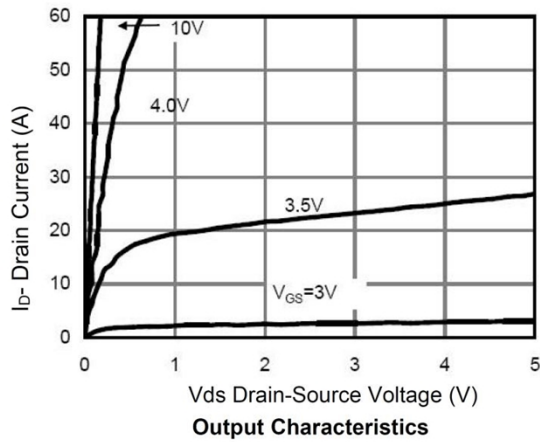
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

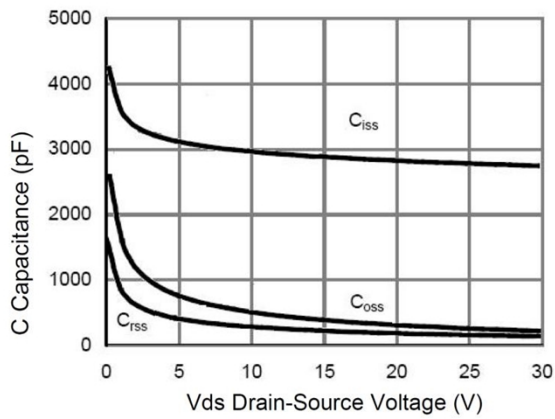
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =30V,V _{GS} = 0V			1	uA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V , V _{DS} =0V			±100	uA
On Characteristics						
Gate-source threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.6	2.5	V
Static Drain-Source on-Resistance note3	R _{DS(on)}	V _{GS} =10V, I _D =30A		2	2.5	mΩ
		V _{GS} =4.5V, I _D =20A		3	4	
		V _{DS} =5, I _D =10A		28		
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz		3400		pF
Output Capacitance	C _{oss}			356		
Reverse Transfer Capacitance	C _{rss}			308		
Total Gate Charge	Q _g	V _{DS} =15V, I _D =30A, V _{GS} =10V		70		pF
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 =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						
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:

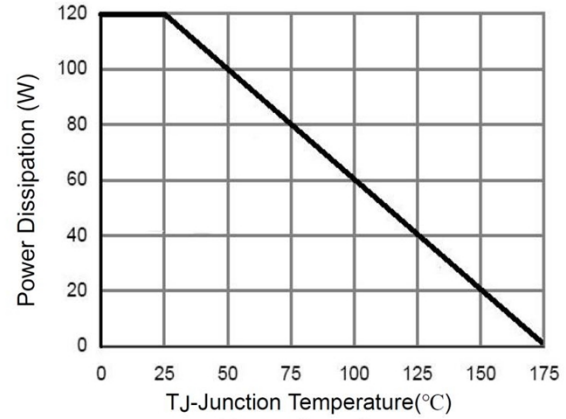
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: $T_J = 25^{\circ}\text{C}$, $V_G = 10V$, $L = 0.5mH$, $R_G = 25\Omega$
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

Typical Characteristics

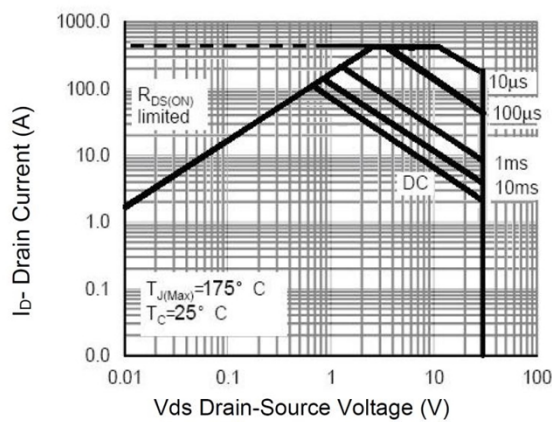




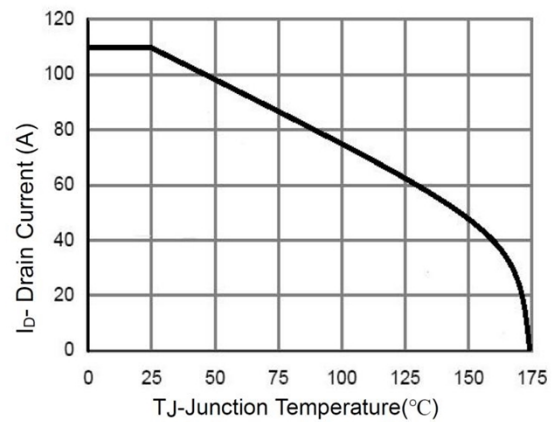
Capacitance vs Vds



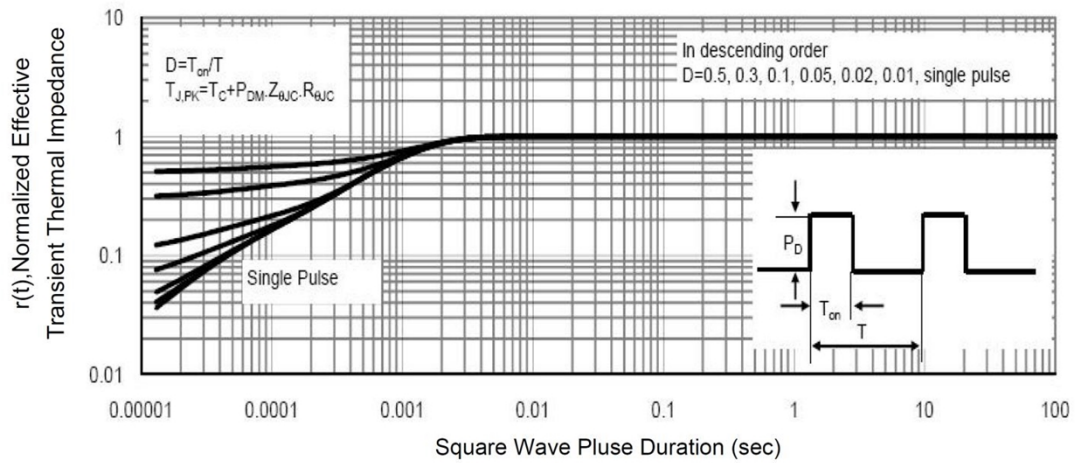
Power De-rating



Safe Operation Area

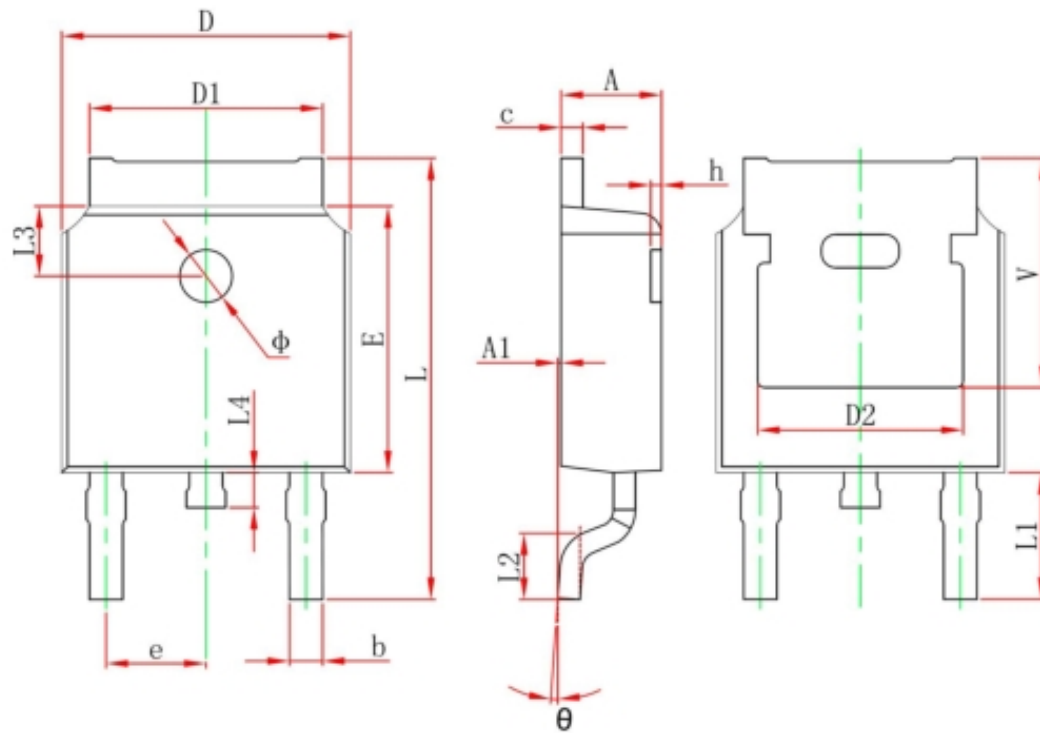


Current De-rating



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.	