Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	7.5mΩ@10V	40A
	10.5mΩ@4.5V	

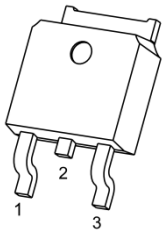
Feature

- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

Application

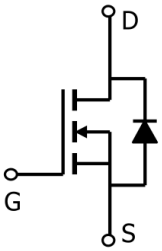
- PWM applications
- Load switch
- Power management

Package

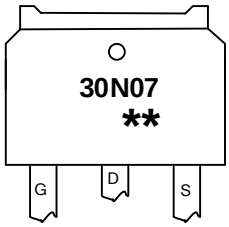


TO-252-2L(G:1 D:2 S:3)

Circuit diagram



Marking



30N07 : Product code
** : Week code.

Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V_{GS}=0V)	V_{DS}	30	V
Gate-Source Voltage (V_{DS}=0V)	V_{GS}	±20	V
Drain Current-Continuous(Tc=25℃) (1)	I_D	40	A
Drain Current-Continuous(Tc=100℃)		28	A
Drain Current-Continuous@ Current-Pulsed (2)	$I_{DM\ (pluse)}$	160	A
Maximum Power Dissipation(Tc=25℃)	P_D	50	W
Maximum Power Dissipation(Tc=100℃)		25	W
Avalanche energy (3)	E_{AS}	90	mJ
Thermal Resistance,Junction-to-Case	$R_{\theta Jc}$	3	℃/W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 175	℃

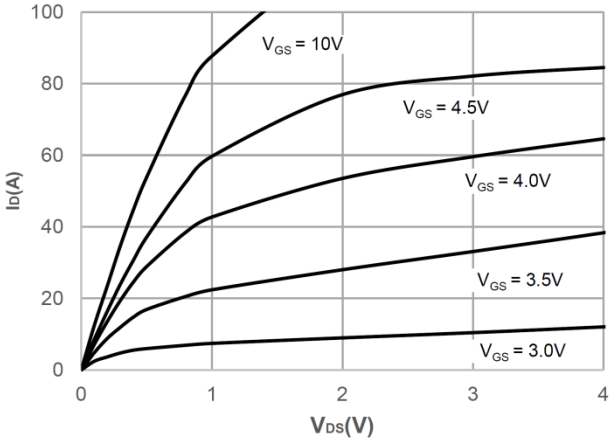
Electrical characteristics (Ta=25℃, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V,V_{GS}=0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1	1.5	2.5	V
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=20A	10	20		S
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A		7.5	10	mΩ
		V_{GS}=4.5V, I_D=15A		10.5	15	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V, f=1.0MHz		1050		pF
Output Capacitance	C_{oss}			145		pF
Reverse Transfer Capacitance	C_{rss}			120		pF
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V,f=1.0MHz		2		Ω
Switching Times						
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=10V, V_{DS}=15V, R_L=0.75W,R_{GEN}=3W		7		nS
Turn-on Rise Time	t_r			22		nS
Turn-Off Delay Time	$t_{d(off)}$			30		nS
Turn-Off Fall Time	t_f			5		nS
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=25V, I_D=12A		22		nC
Gate-Source Charge	Q_{gs}			4		nC
Gate-Drain Charge	Q_{gd}			7		nC
Source-Drain Diode Characteristics						
Gate-Drain Charge	V_{SD}	V_{GS}=0V,I_S=20A			1.2	V

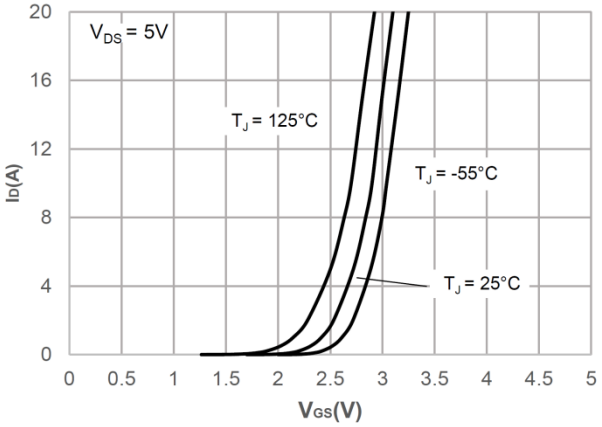
Notes:

1. The maximum current rating is package limited
2. Repetitive Rating: Pulse width limited by maximum junction
3. EAS condition: TJ=25℃,VDD=30V,VG=10V, RG=25Ω

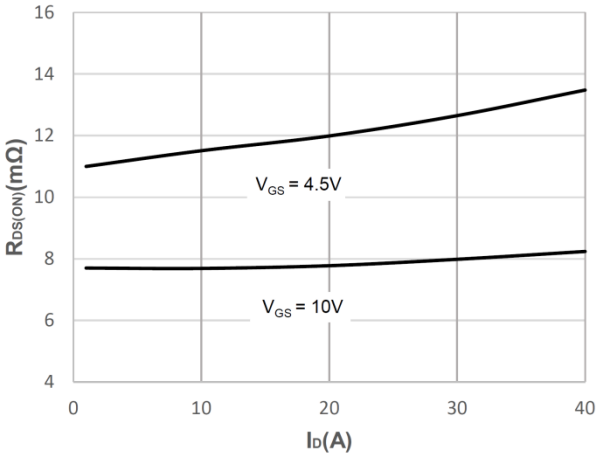
Typical Characteristics



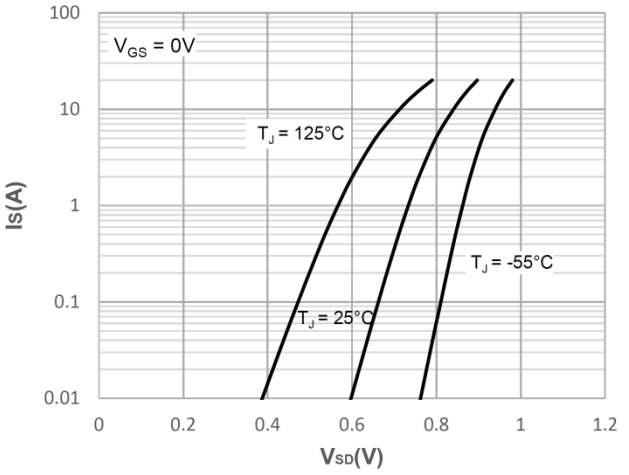
Output Characteristics



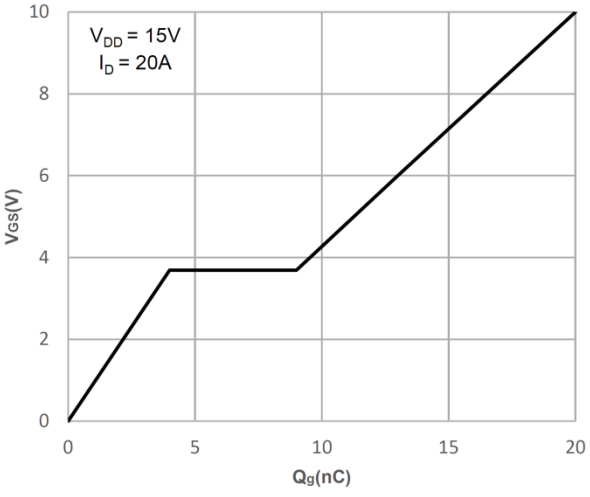
Typical Transfer Characteristics



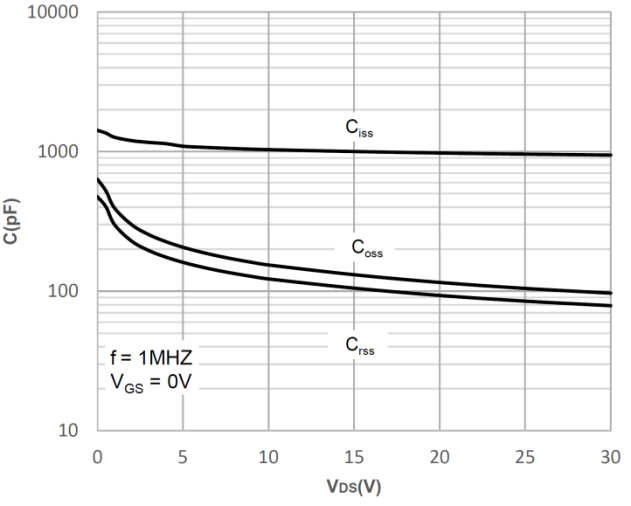
On-resistance vs. Drain Current



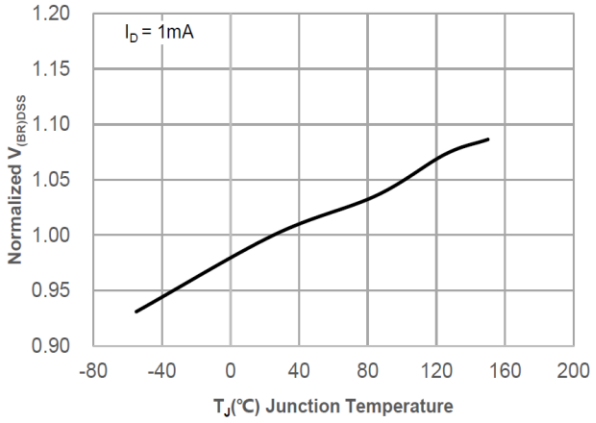
Body Diode Characteristics



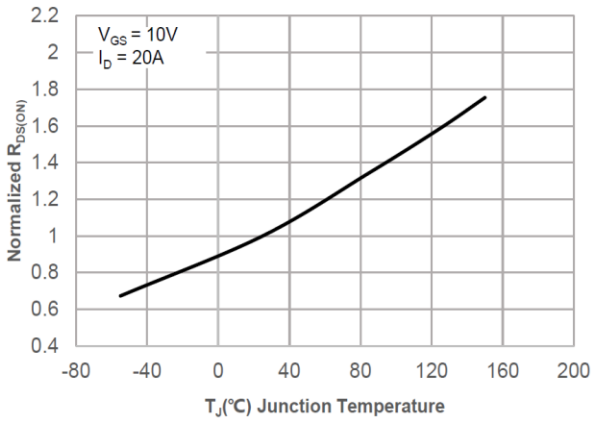
Gate Charge Characteristics



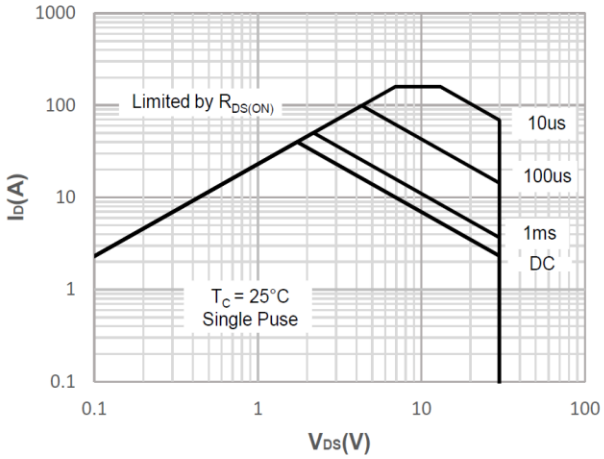
Capacitance Characteristics



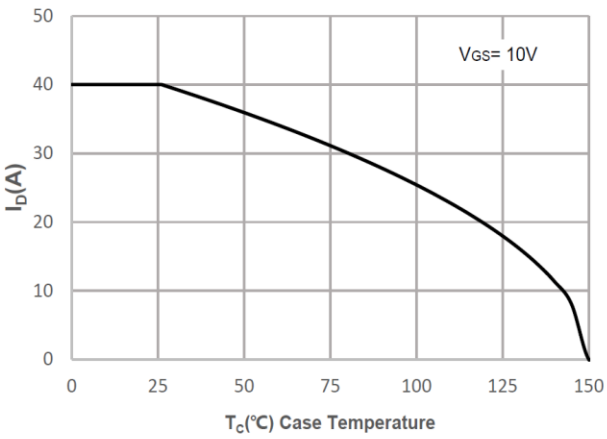
Normalized Breakdown voltage vs. Junction Temperature



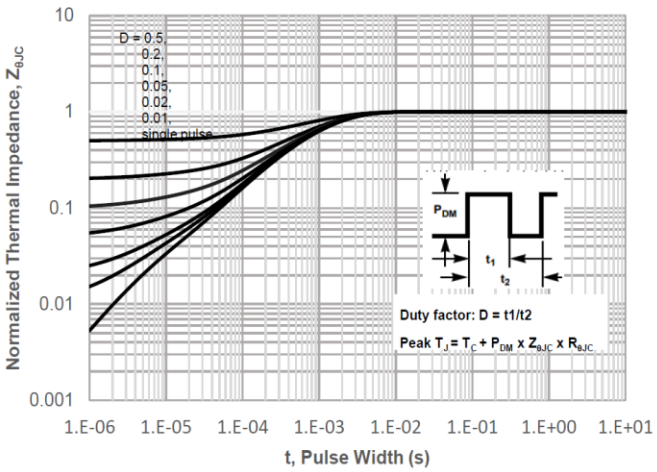
Normalized on Resistance vs. Junction Temperature



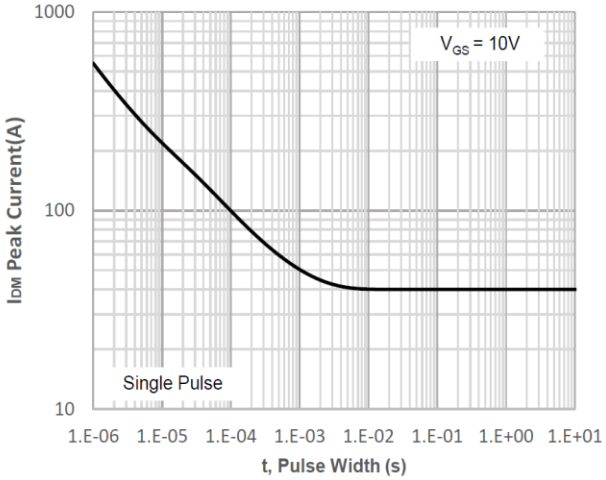
Maximum Safe Operating Area



Maximum Continuous Drain Current vs. Case Temperature

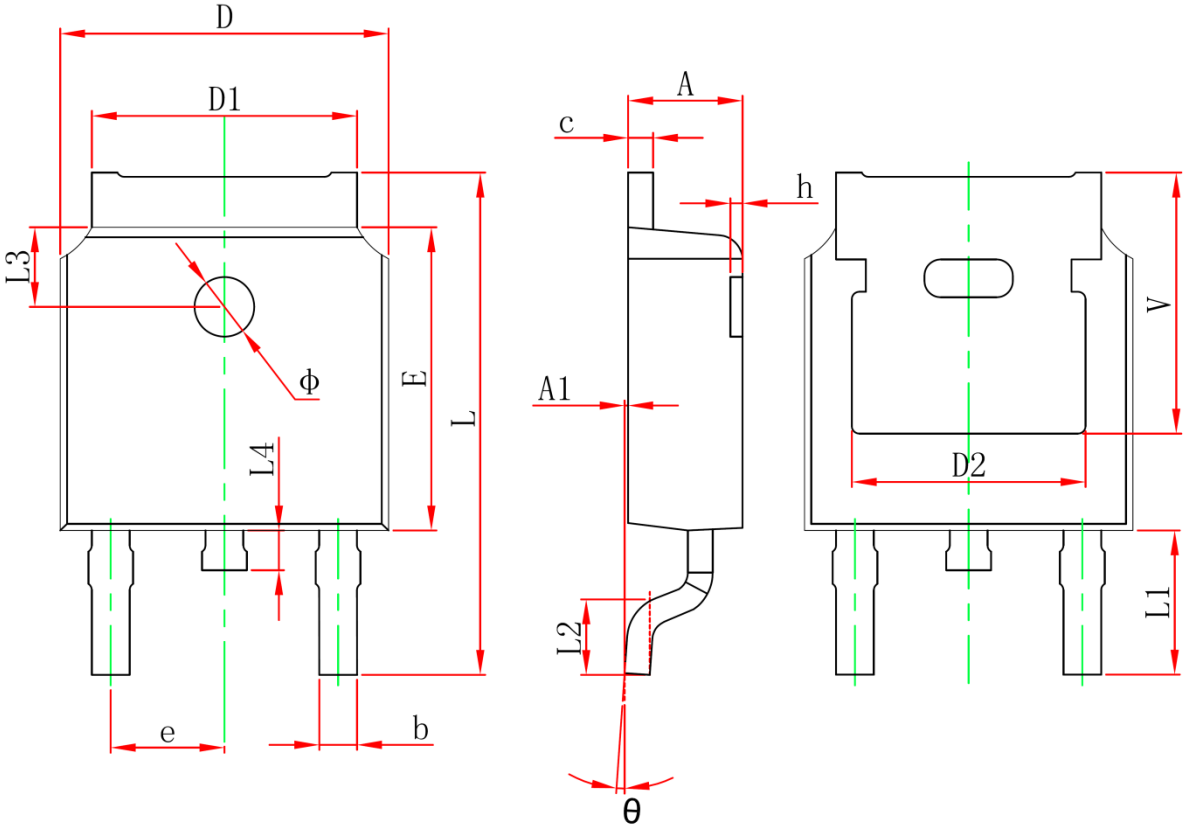


Normalized Maximum Transient Thermal Impedance



Peak Current Capacity

TO-252-2L 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.	