



Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
270V	100mΩ@10V	30A

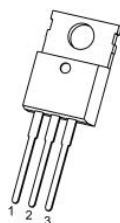
Feature

- Fast Switching
- Low Gate Charge and Rdson
- 100% Single Pulse avalanche energy Test

Applications

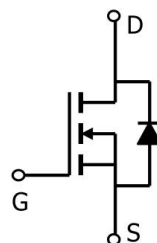
- DC-DC Converter
- Ideal for high-frequency switching and synchronous rectification

Package

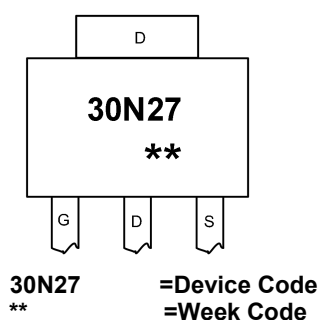


TO-220-3L-C(1:G 2:D 3:S)

Circuit diagram



Marking



**Absolute maximum ratings (Ta=25°C, unless otherwise noted)**

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	270	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹ (T _C =25°C)	I_D	30	A
Pulsed Drain Current ²	I_{DM}	120	A
Single Pulse Avalanche Energy ³	E_{AS}	949	mJ
Total Power Dissipation(T _C =25°C)	P_D	150	W
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	0.83	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

Electrical characteristics (Ta=25°C, unless otherwise noted)

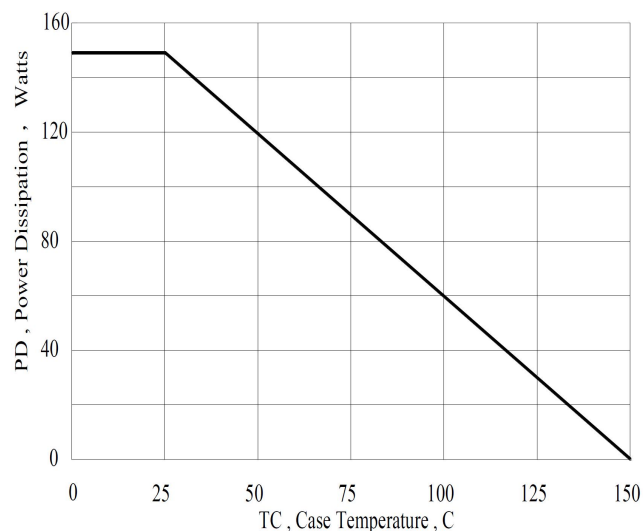
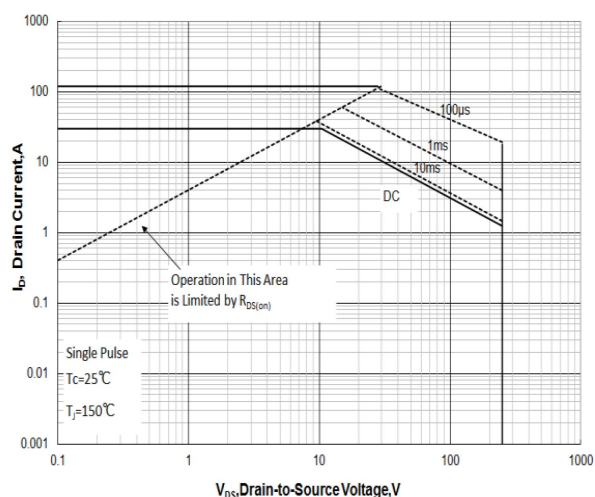
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250uA	270	---	---	V
Drain-Source Leakage Current	Idss	VDS=200V , VGS=0V , TJ=25℃	---	---	10	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V	---	---	±100	nA
Gate Threshold Voltage	VGS(th)	VGS=VDS , ID =250uA	2	3	4	V
Static Drain-Source on-Resistance	RDS(ON)	VGS=10V , ID=15A	---	100	120	mΩ
Dynamic characteristics						
Input Capacitance	Ciss	VDS=25V , VGS=0V , f=1MHz	---	1916	---	pF
Output Capacitance	Coss		---	238	---	
Reverse Transfer Capacitance	Crss		---	23	---	
Switching Characteristics						
Total Gate Charge	Qg	VDS=200V , VGS=10V , ID=30A	---	36	---	nC
Gate-Source Charge	Qgs		---	12	---	
Gate-Drain Charge	Qgd		---	15	---	
Turn-On Delay Time	Td(on)	VDD=125V , VGS=10V , RG=10Ω, ID=30A	---	31	---	ns
Rise Time	Tr		---	82	---	
Turn-Off Delay Time	Td(off)		---	49	---	
Fall Time	Tf		---	20	---	

Note :

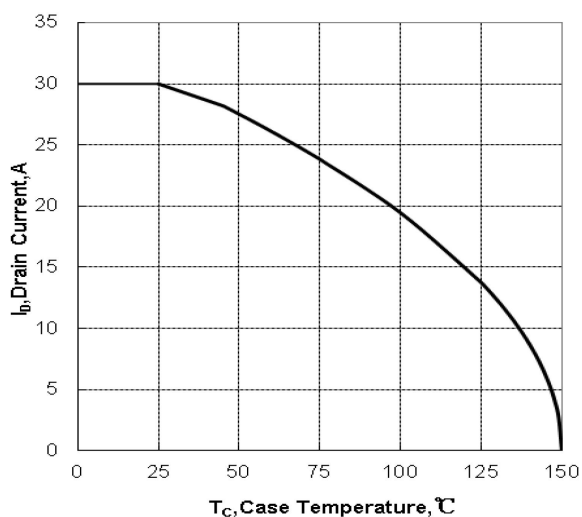
- The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- The EAS data shows Max. rating . The test condition is $R_G=30\Omega$, $L=10mH$



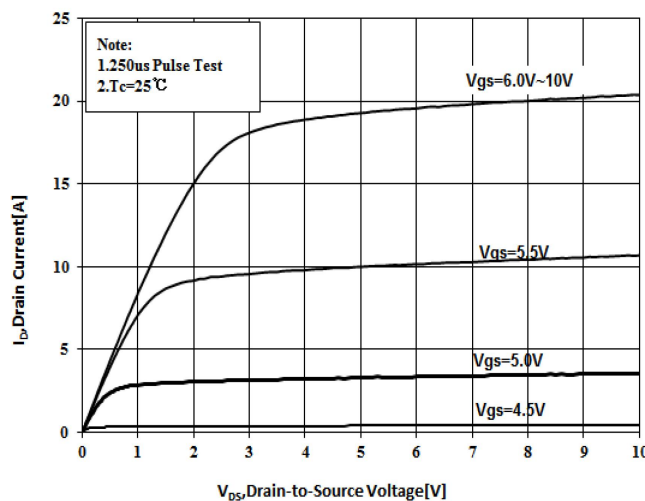
Typical Characteristics



Maximum Forward Bias Safe Operating Area

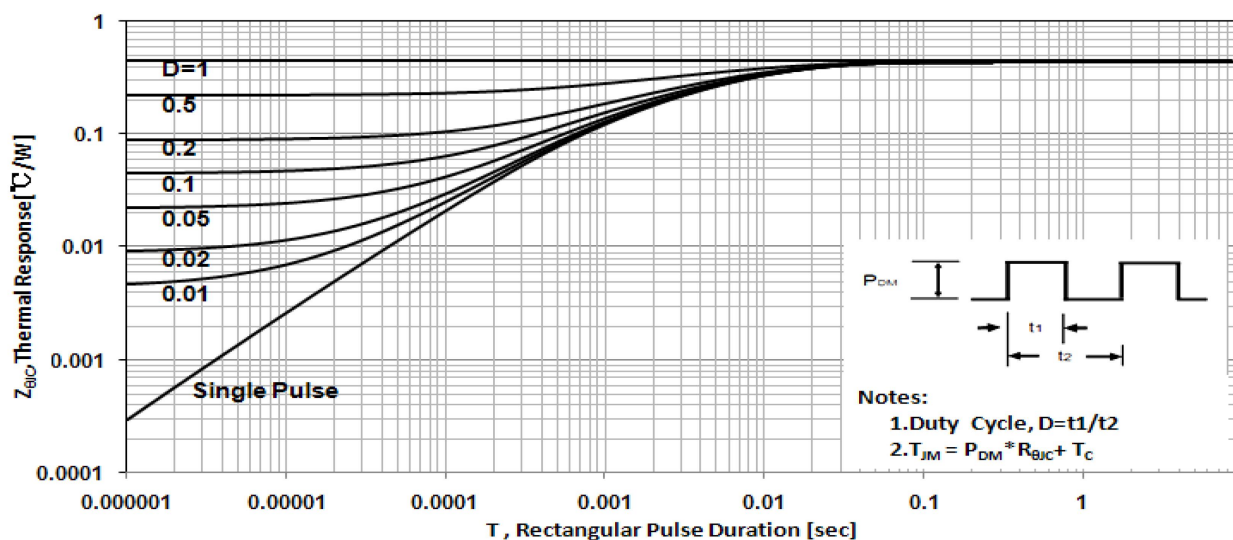


Maximum Power dissipation vs Case Temperature

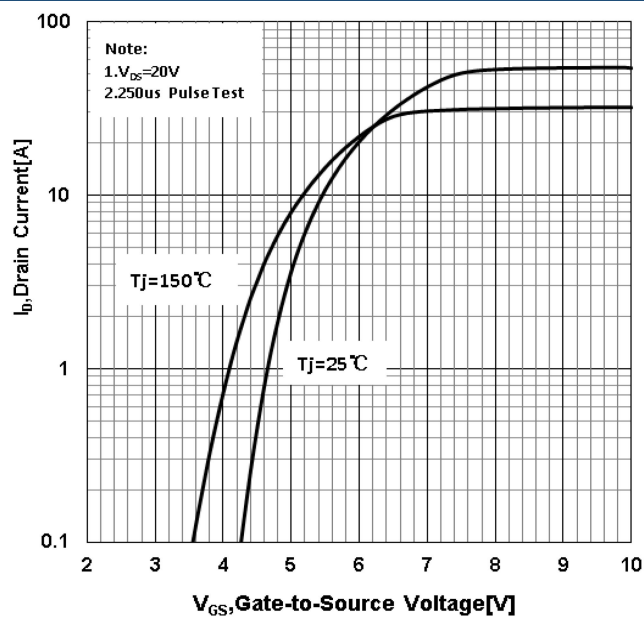


Maximum Continuous Drain Current vs Case Temperature

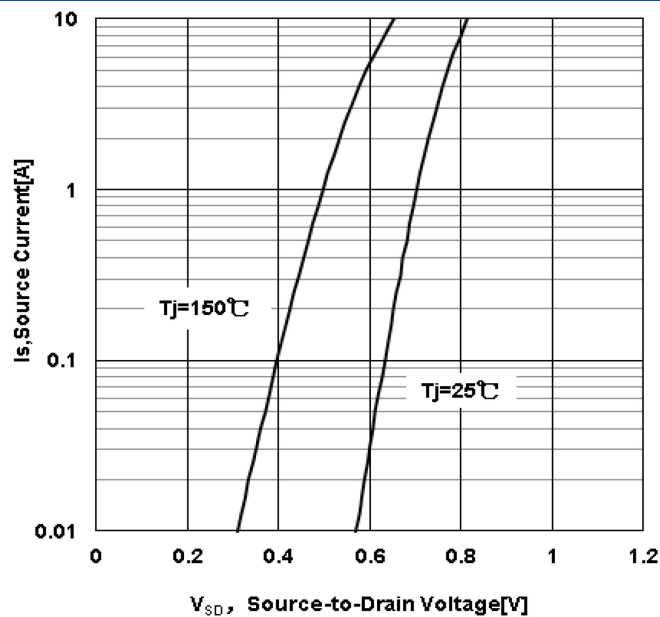
Typical Output Characteristics



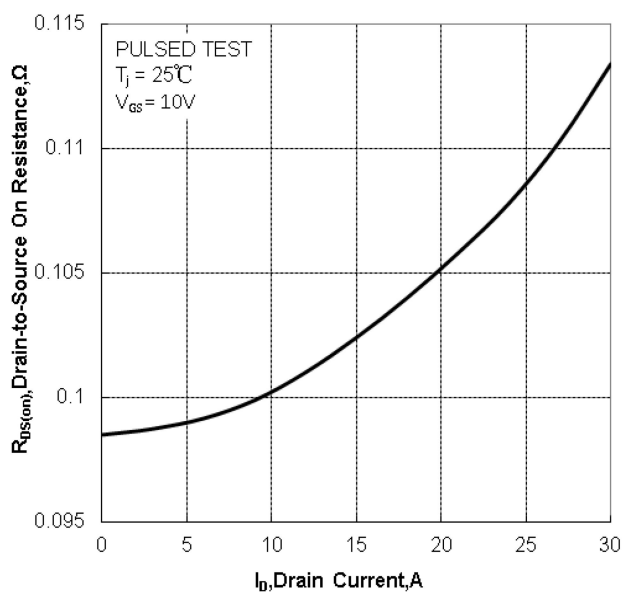
Maximum Effective Thermal Impedance , Junction to Case



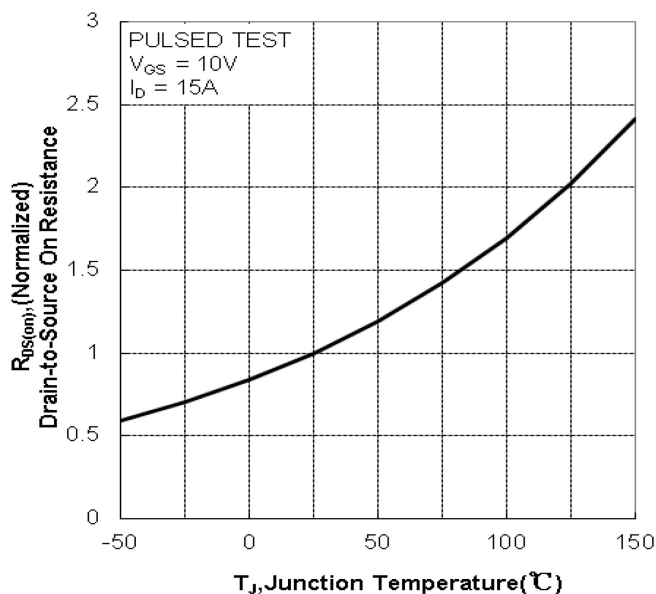
Typical Transfer Characteristics



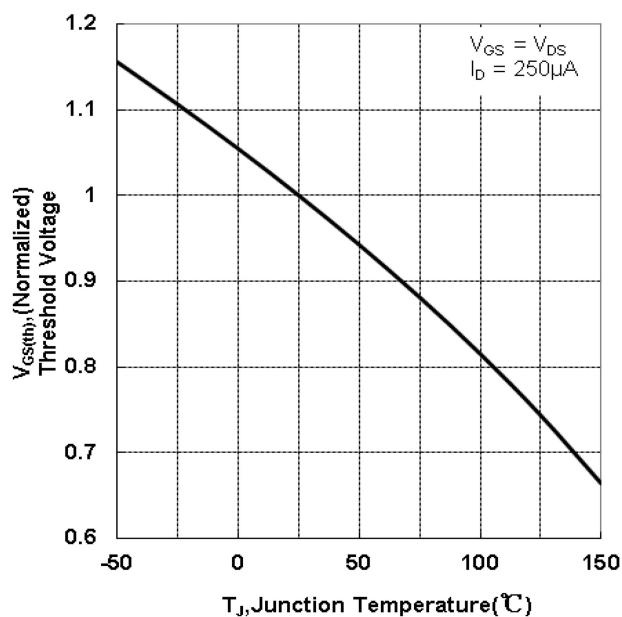
Typical Body Diode Transfer Characteristics



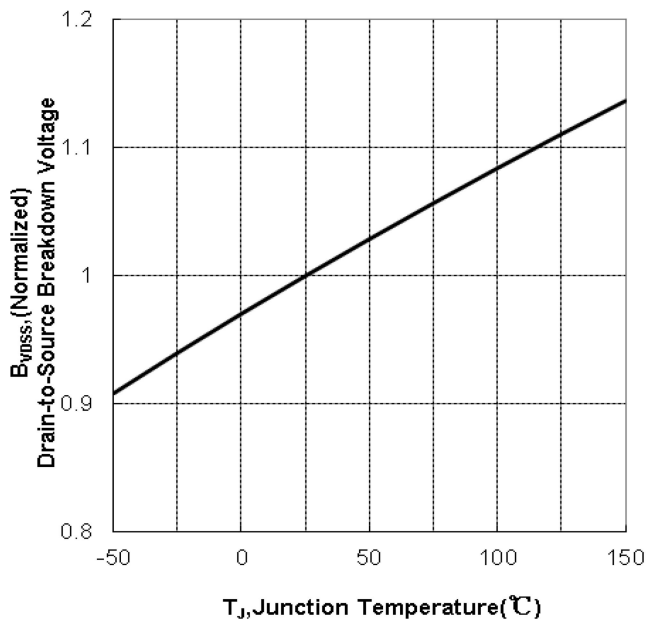
Typical Drain to Source ON Resistance vs Drain Current



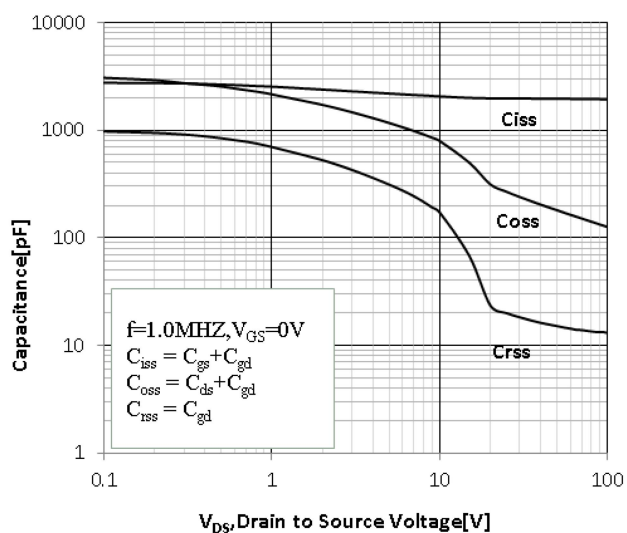
Typical Drian to Source on Resistance vs Junction Temperature



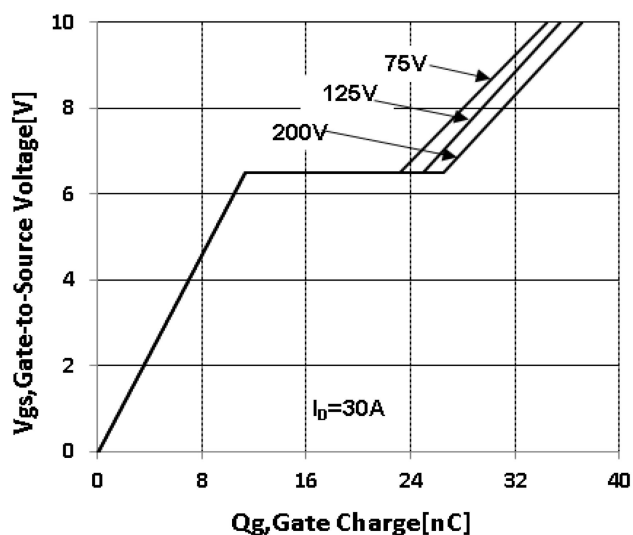
Typical Theshold Voltage vs Junction Temperature



Typical Breakdown Voltage vs Junction Temperature



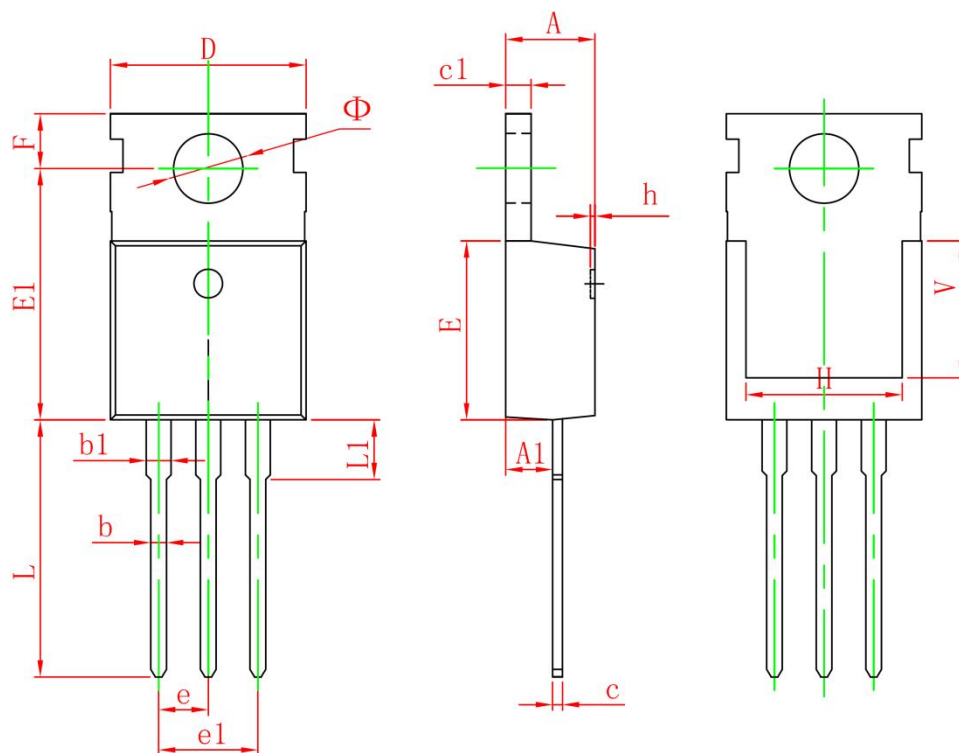
Typical Capacitance vs Drain to Source Voltage



Typical Gate Charge vs Gate to Source Voltage



TO-220-3L-C Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.400	4.600	0.173	0.181
A1	2.250	2.550	0.089	0.100
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.330	0.650	0.013	0.026
c1	1.200	1.400	0.047	0.055
D	9.910	10.250	0.390	0.404
E	8.950	9.750	0.352	0.384
E1	12.650	13.050	0.498	0.514
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
F	2.650	2.950	0.104	0.116
H	7.900	8.100	0.311	0.319
h	0.000	0.300	0.000	0.012
L	12.900	13.400	0.508	0.528
L1	2.850	3.250	0.112	0.128
V	6.900 REF.		0.276 REF.	
Φ	3.400	3.800	0.134	0.150