

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
200V	75mΩ@10V	28A

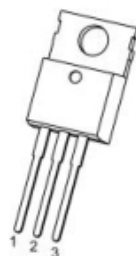
Feature

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

Application

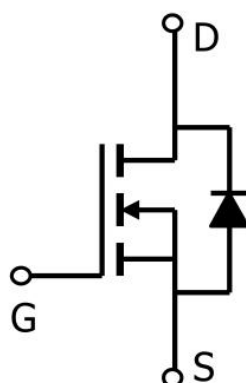
- DC-DC Converter
- Ideal for high-frequency switching and synchronous rectification

Package

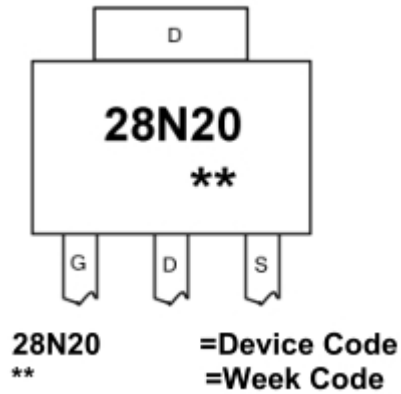


TO-220-3L-C(G:1 D:2 S:3)

Circuit diagram



Marking



Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain source voltage	V _{DS}	200	V
Gate source voltage	V _{GS}	±30	V
Continuous drain current(Tc=25°C)	I _D	28	A
Pulsed drain current ²	I _{DM}	112	A
Single pulsed avalanche energy ³	E _{AS}	350	mJ
Total Power Dissipation (Tc=25°C)	P _D	180	W
Thermal resistance, junction-case ¹	R _{θJC}	0.69	°C/W
Drain source voltage	T _{STG}	-55 to 150	°C
Operation and storage temperature	T _J	-55 to 150	°C

Electrical characteristics

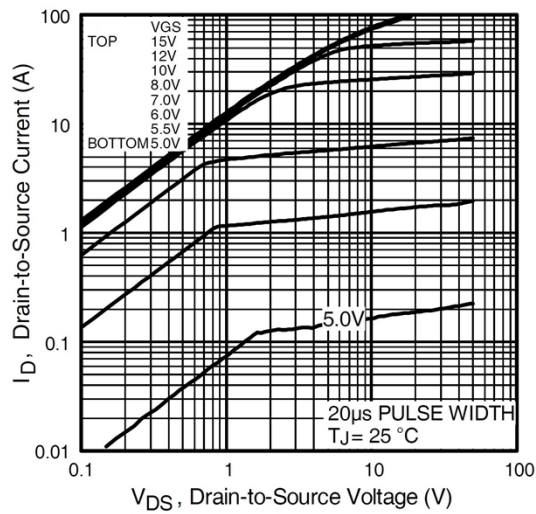
(T_A=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$BV_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	200			V
Bvdss Temperature Coefficient	$\Delta BVDSS/\Delta T_J$	$I_D = 1mA$, Reference $25^{\circ}C$		0.26		
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 160V, V_{GS} = 0V$, $T_J = 25^{\circ}C$			25	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 30V, V_{DS} = 0V$			± 100	μA
Gate-source threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3	4	V
Static Drain-Source on-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 14A$		75	94	$m\Omega$
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V$, $f = 1MHz$		2060		pF
Output Capacitance	C_{oss}			360		
Reverse Transfer Capacitance	C_{rss}			90		
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 400V, V_{DS} = 10V$, $I_D = 20A$		68		pF
Gate-Source Charge	Q_{gs}			18		
Gate-Drain Charge	Q_{gd}			35		
Turn-On Delay Time	$T_{d(on)}$	$V_{DD} = 250V, V_{GS} = 10V$, $R_G = 10\Omega, I_D = 20A$		28		nS
Rise Time	T_r			47		
Turn-Off Delay Time	$T_{d(off)}$			36		
Fall Time	T_f			34		

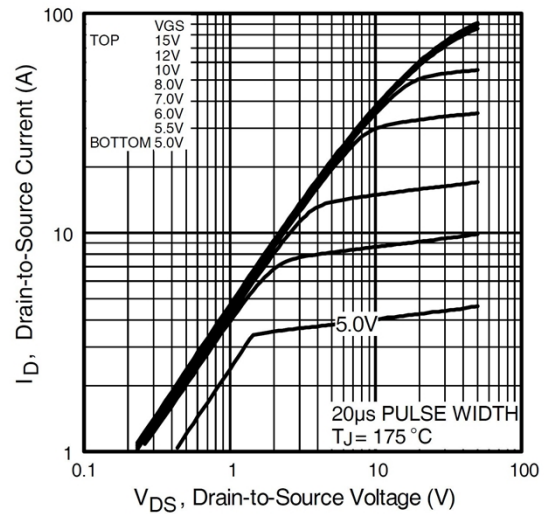
Note:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
3. The EAS data shows Max. rating . The test condition is R_G = 25Ω , L = 10mH

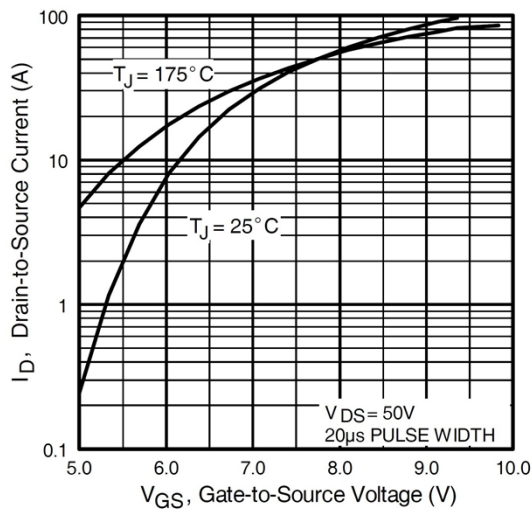
Typical Characteristics



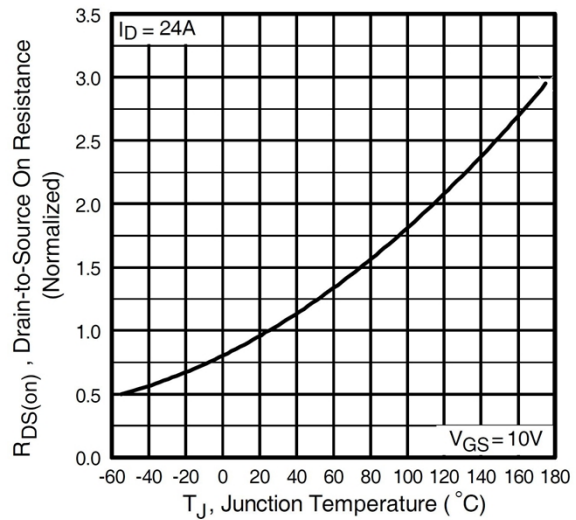
Typical Output Characteristics



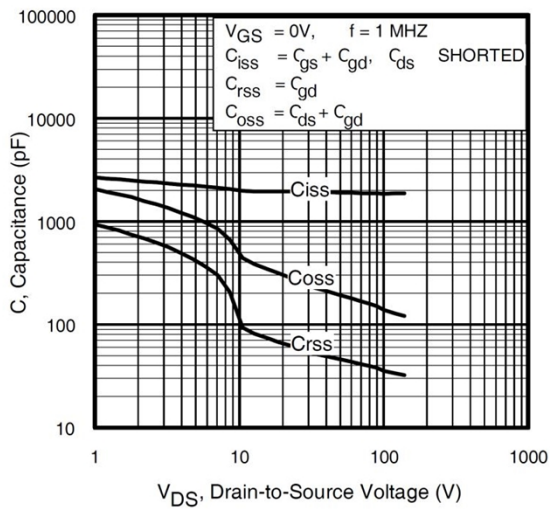
Typical Output Characteristics



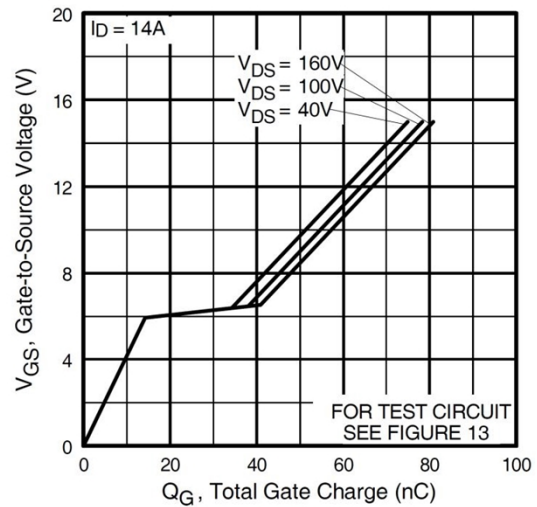
Typical Transfer Characteristics



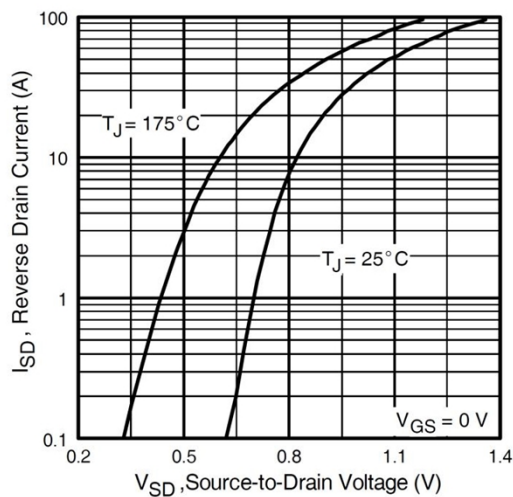
Normalized On-Resistance Vs. Temperature



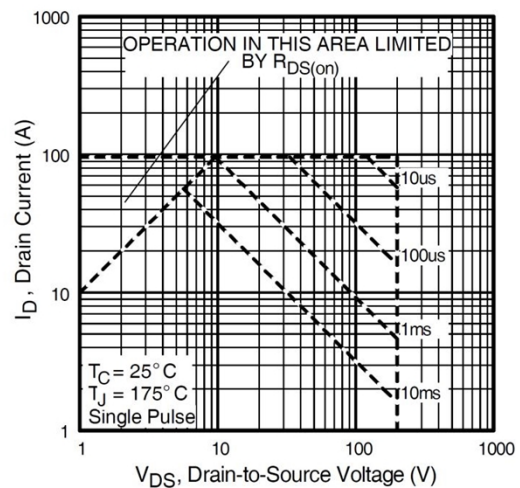
Typical Capacitance Vs. Drain-to-Source Voltage



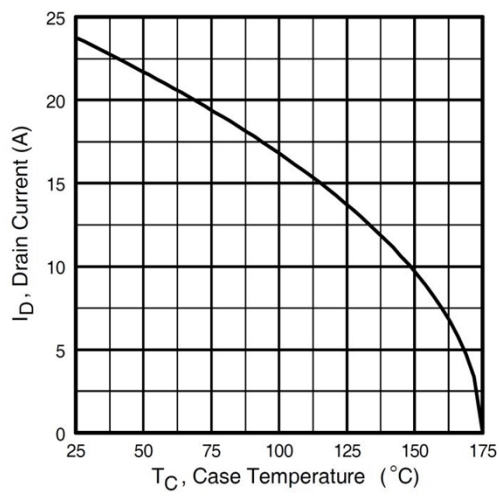
Typical Gate Charge Vs. Gate-to-Source Voltage



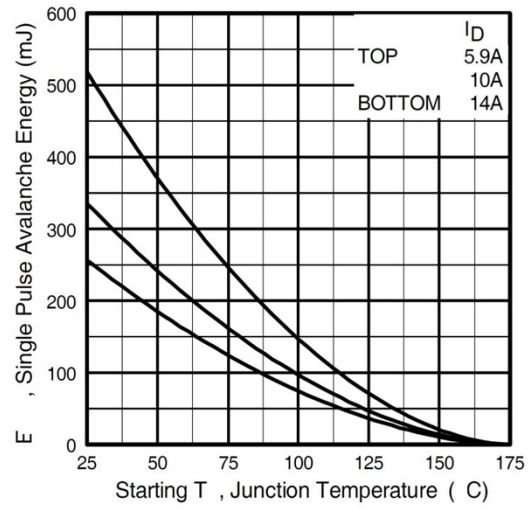
Typical Source-Drain Diode Forward Voltage



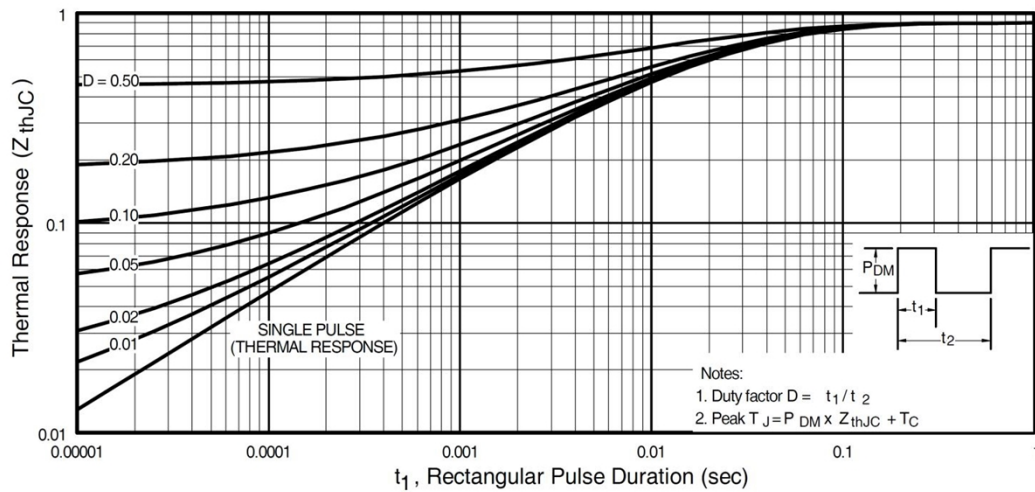
Maximum Safe Operating Area



**Maximum Drain Current Vs.
Case Temperature**

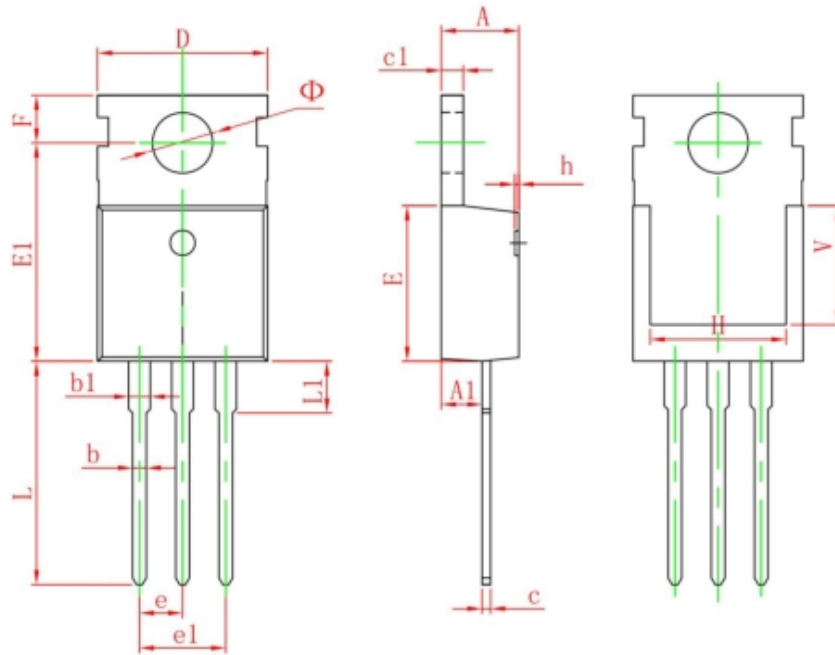


**Maximum Avalanche Energy Vs.
Drain Current**



Maximum Effective Transient Thermal Impedance, Junction-to-Case

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