

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	7mΩ@10V	110A

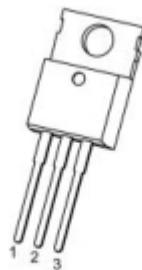
Feature

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

Application

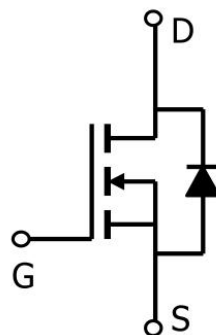
- DC-DC Converter
- Ideal for high-frequency switching and synchronous rectification

Package

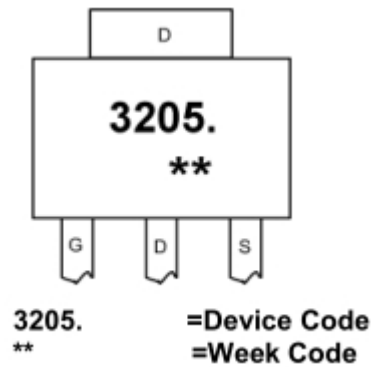


TO-220-3L-C(G:1 D:2 S:3)

Circuit diagram



Marking



Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	60	V
Gate-Source Voltage	V _{GS}	±25	V
Continuous Drain Current ¹ (T _C =25°C)	I _D	110	A
Pulsed Drain Current ²	I _{DM}	390	A
Single Pulse Avalanche Energy ³	E _{AS}	850	mJ
Total Power Dissipation(T _C =25°C)	P _D	200	W
Thermal Resistance Junction-Case ¹	R _{θJC}	0.625	°C/W
Storage Temperature Range	T _{STG}	-55 to 150	°C
Operating Junction Temperature Range	T _J	-55 to 150	°C

Electrical characteristics

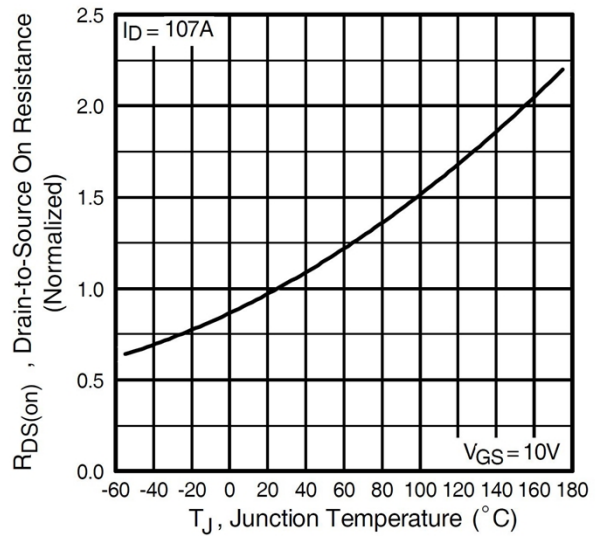
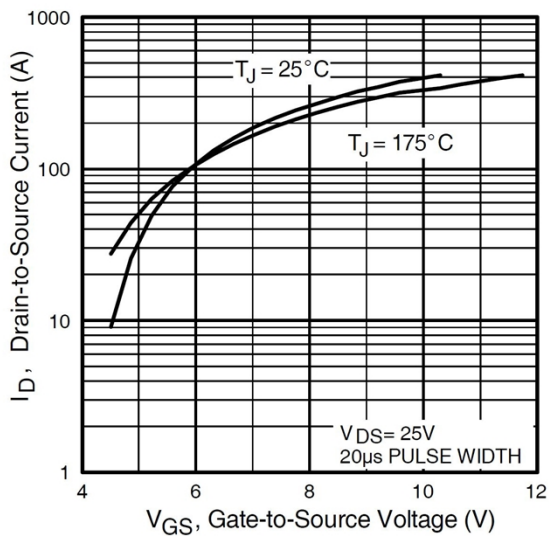
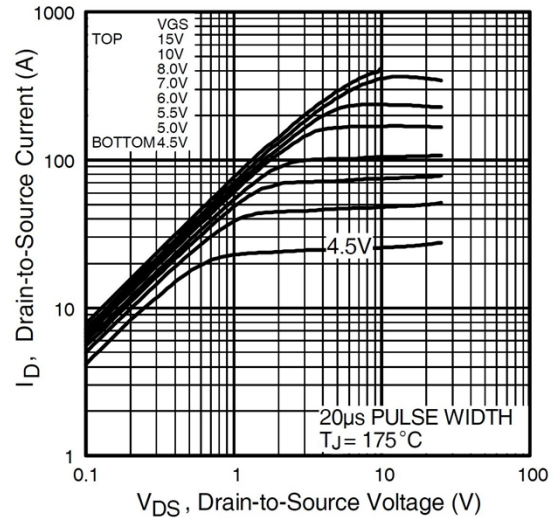
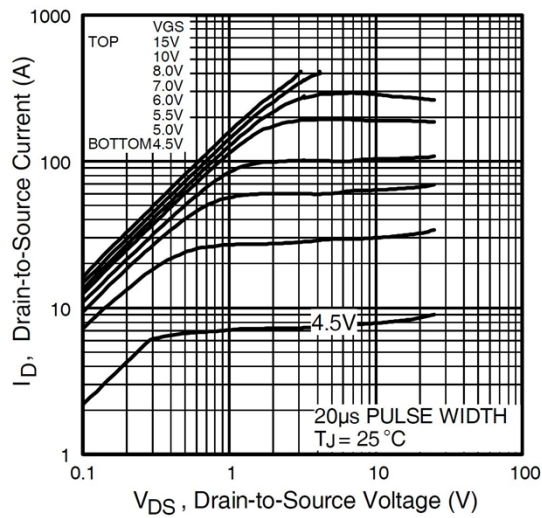
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$BV_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Bvdss Temperature Coefficient	$\Delta BV_{DSS}/\Delta T$	$I_D=1mA$, Reference $25^{\circ}C$		0.057		V/°C
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 48V, V_{GS} = 0V$, $T_J=25^{\circ}C$			1	uA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 25V, V_{DS} = 0V$			±100	uA
Gate threshold voltage ⁽¹⁾	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3	4	V
Static Drain-Source on-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		7	10	mΩ
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V$, $f=1MHz$		3265		pF
Output capacitance	C_{oss}			772		
Reverse transfer capacitance	C_{rss}			291		
Switching Characteristics						
Total gate charge	Q_g	$V_{DS} = 44V, V_{GS} = 10V$, $I_D = 20A$		77		nC
Gate-source charge	Q_{gs}			11		
Gate-drain charge	Q_{gd}			20		
Turn-on Delay Time	$T_{d(on)}$	$V_{DD}=28V, V_{GS}=10V$, $R_G=4.5\Omega, I_D=20A$		14		nS
Turn-on Rise Time	T_r			101		
Turn-Off Delay Time	$T_{d(off)}$			50		
Turn-Off Fall Time	t_f			65		

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 $\leq 300\mu s$, duty cycle $\leq 2\%$
3. The EAS data shows Max. rating . The test condition is $R_G=25\Omega$, $L=0.1mH$

Typical Characteristics



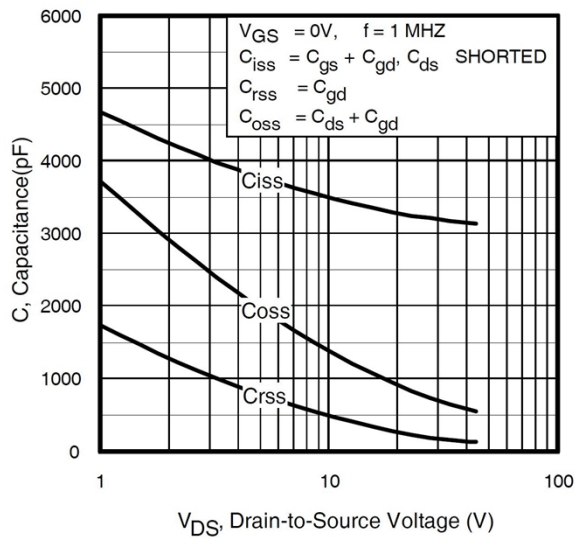


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

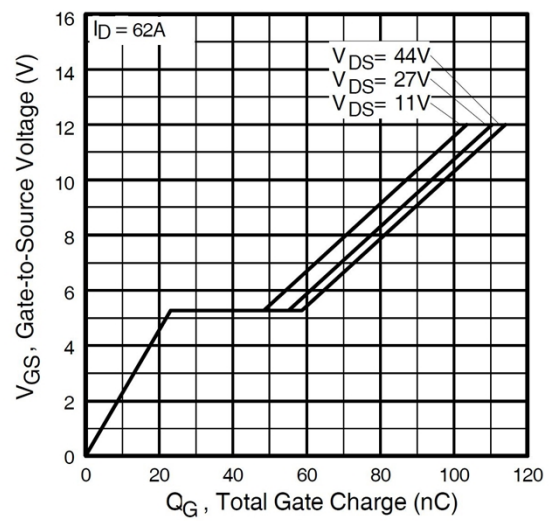


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

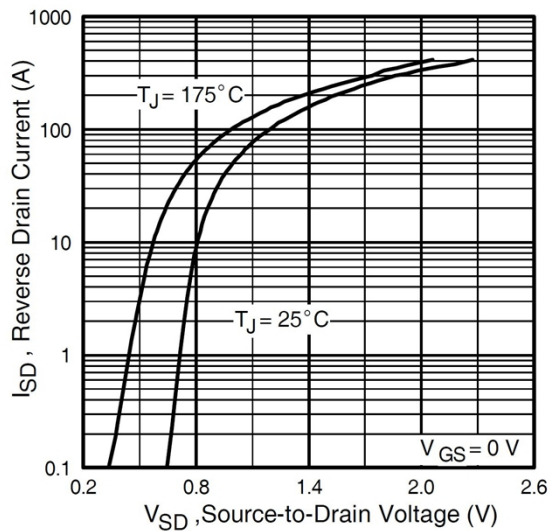


Fig 7. Typical Source-Drain Diode Forward Voltage

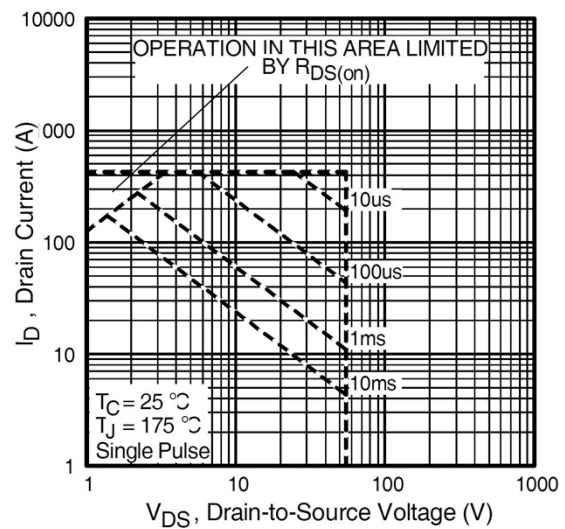
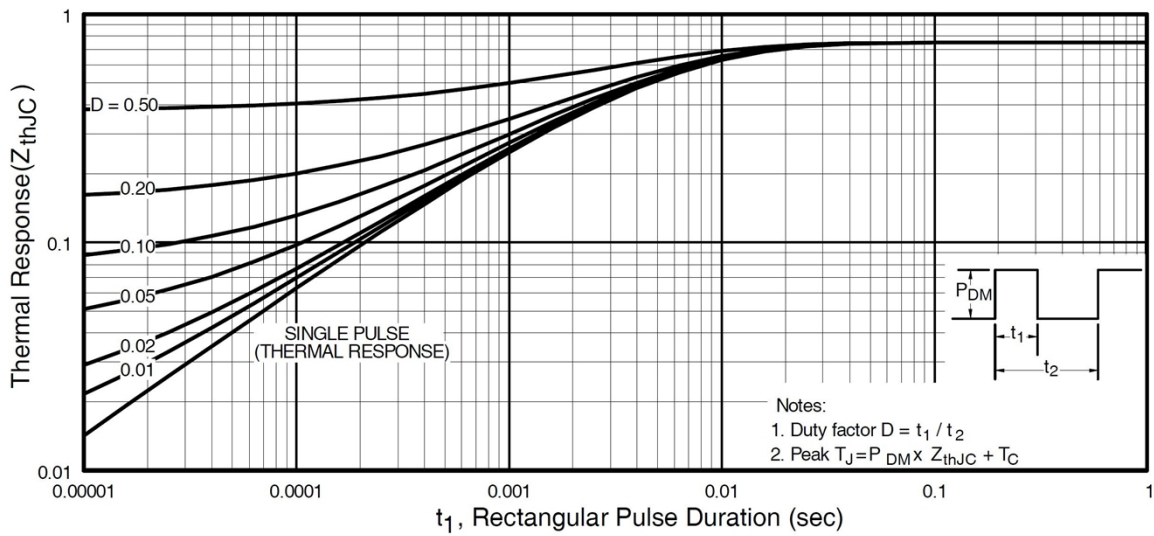
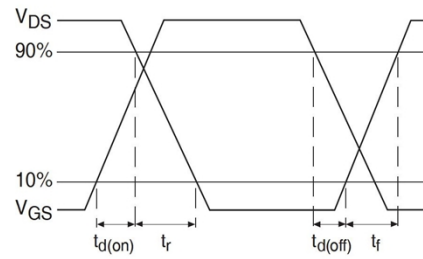
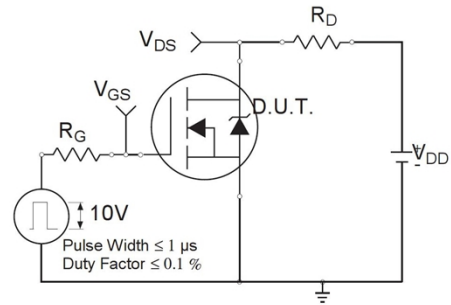
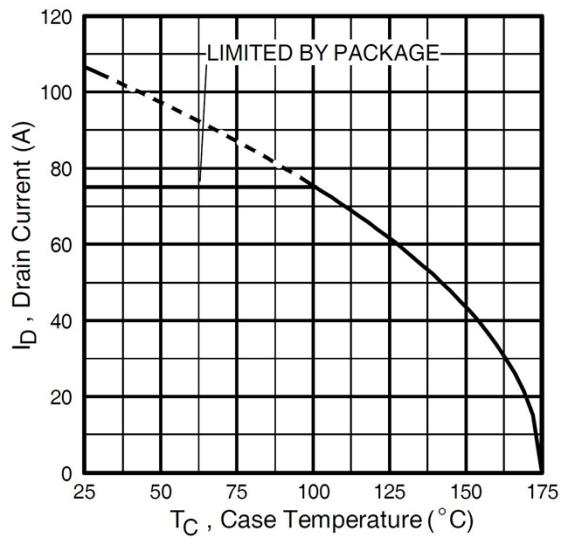
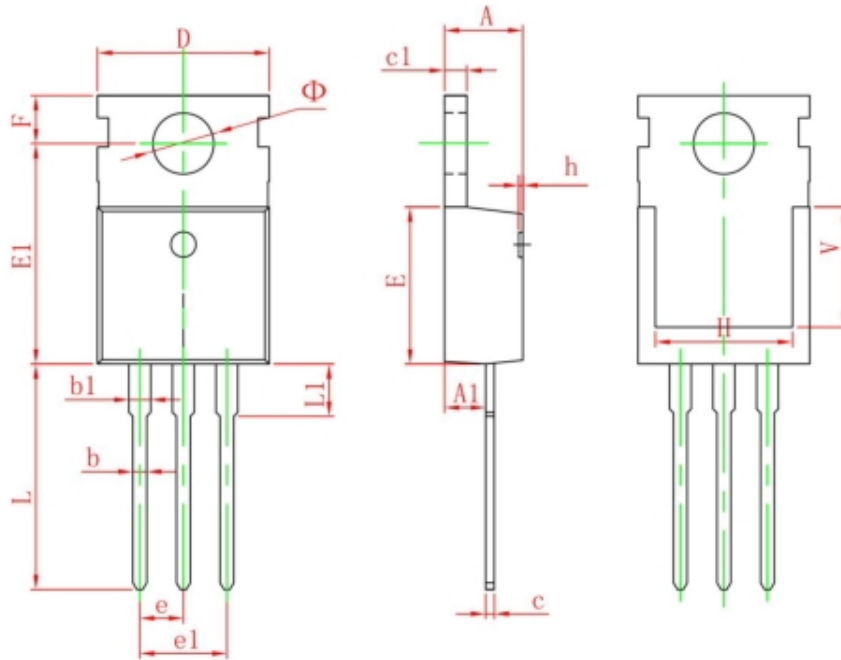


Fig 8. Maximum Safe Operating Area



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