

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
200V	30mΩ@10V	50A

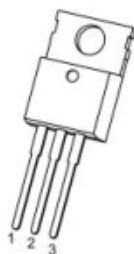
Feature

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

Applications

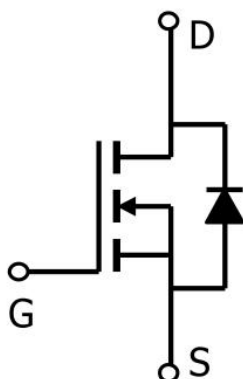
- DC-DC Converter
- Ideal for high-frequency switching and synchronous rectification

Package

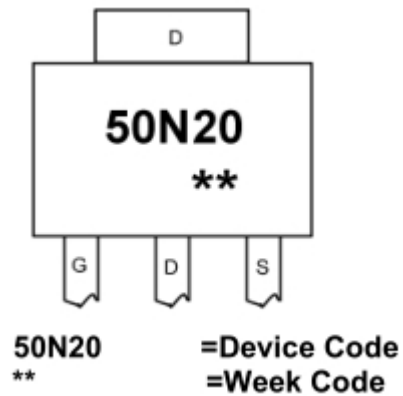


TO-220-3L-C(G:1 D:2 S:3)

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}	±20	V
Continuous Drain Current ¹ (T _C =25°C)	I _D	50	A
Pulsed Drain Current ²	I _{DM}	200	A
Single Pulse Avalanche Energy ³	E _{AS}	460	
Total Power Dissipation(T _C =25°C)	P _D	300	W
Thermal Resistance Junction-Case ¹	R _{θJC}	0.42	°C/ W
Storage Temperature Range	T _{STG}	-55 to 150	°C
Operating Junction Temperature Range	T _J	-55 to 150	°C

Electrical characteristics

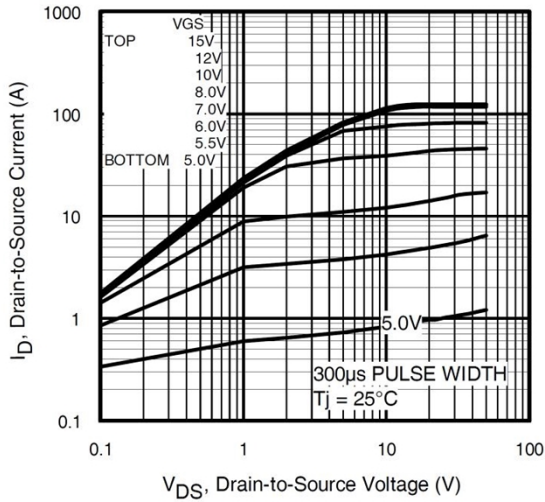
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	200			V
Bvdss Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	$I_D = 1mA, \text{Reference } 25^{\circ}C$		0.22		V/°C
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 160V, V_{GS} = 0V, T_J = 25^{\circ}C$			25	uA
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 30V, V_{DS} = 0V$			±100	uA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3	4	V
Static Drain-Source on-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 26A$		30	38	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$		2920		pF
Output Capacitance	C_{oss}			470		
Reverse Transfer Capacitance	C_{rss}			76		
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 100V, V_{GS} = 10V, I_D = 26A$		66		pF
Gate-Source Charge	Q_{gs}			18.5		
Gate-Drain Charge	Q_{gd}			29		
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	$T_{d(off)}$			57		
Fall Time	T_f			40		

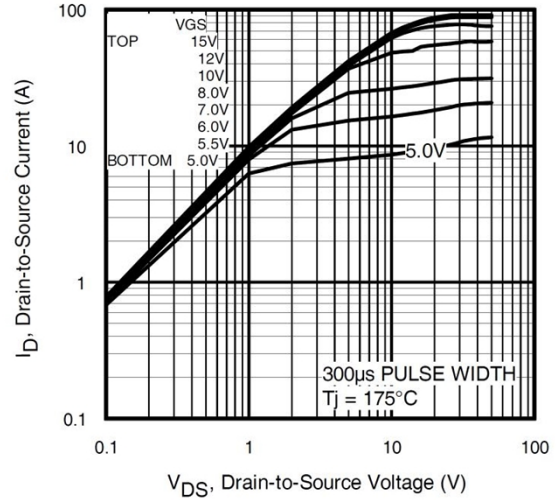
Note :

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 $R_G = 25\Omega, L = 10mH$

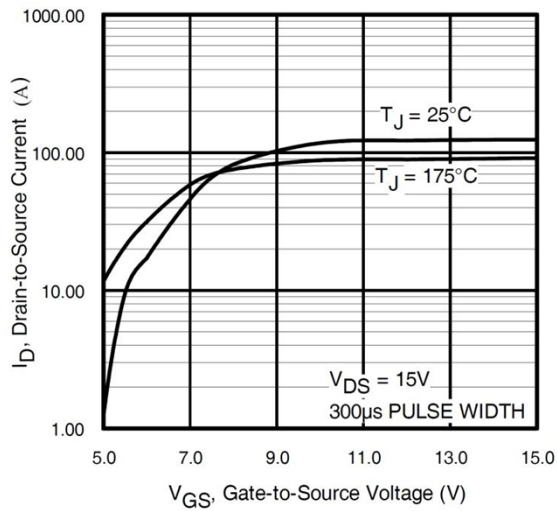
Typical Characteristics



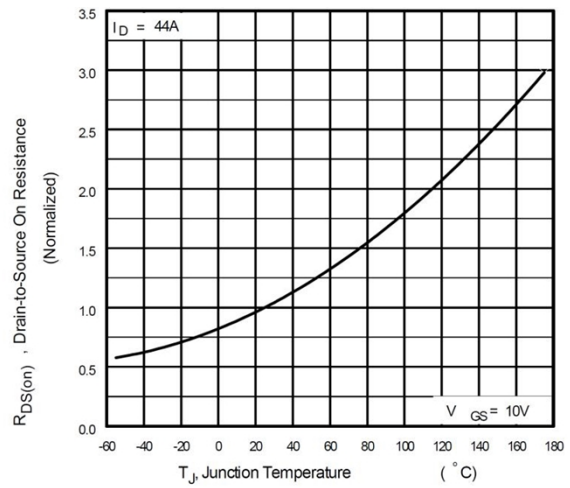
Typical Output Characteristics



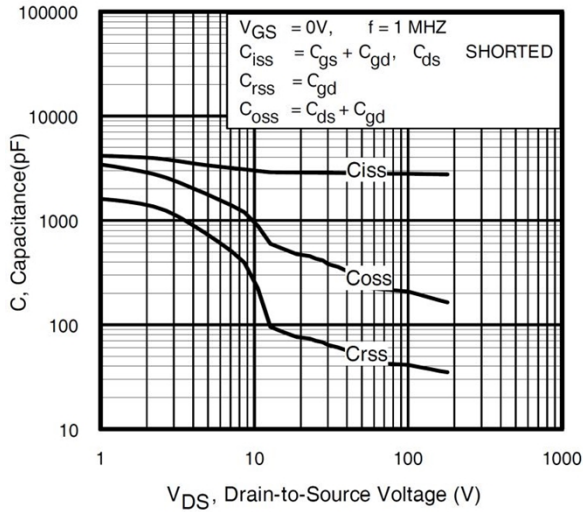
Typical Output Characteristics



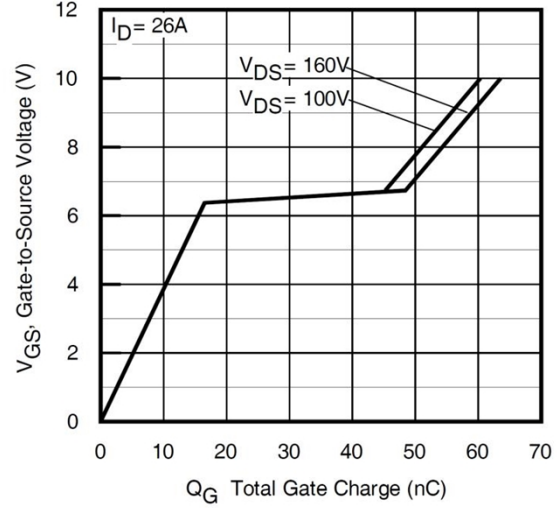
Typical Transfer Characteristics



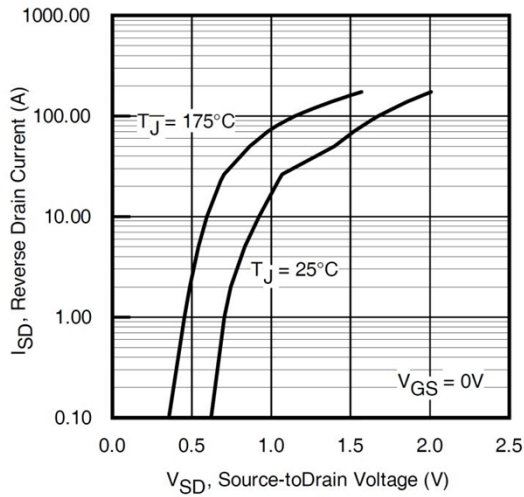
Normalized On-Resistance vs. Temperature



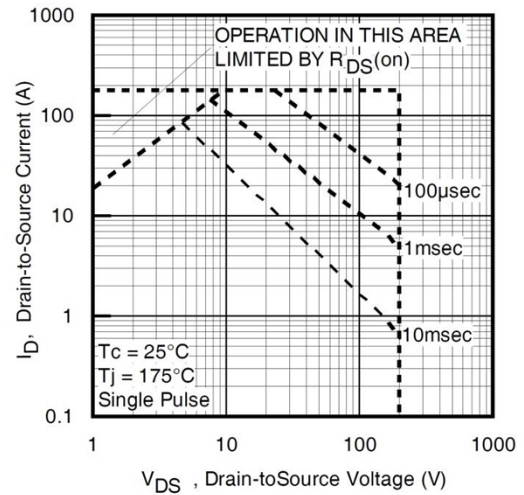
Typical Capacitance vs.
Drain-to-Source Voltage



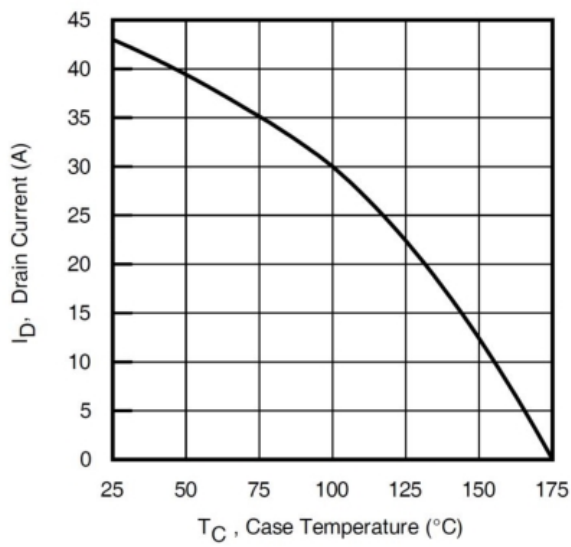
Typical Gate Charge vs.
Gate-to-Source Voltage



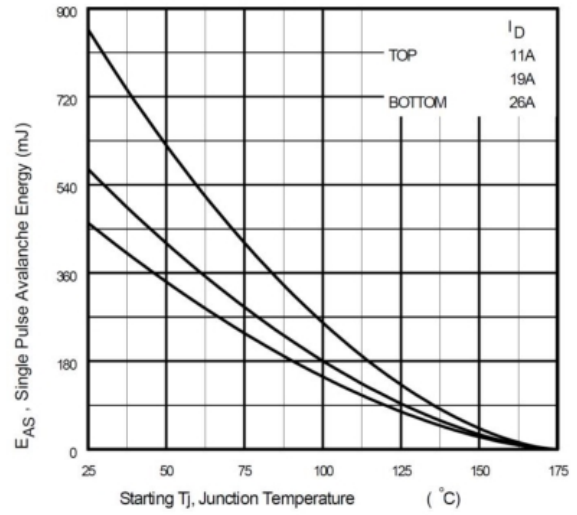
Typical Source-to-Drain Diode
Forward Voltage



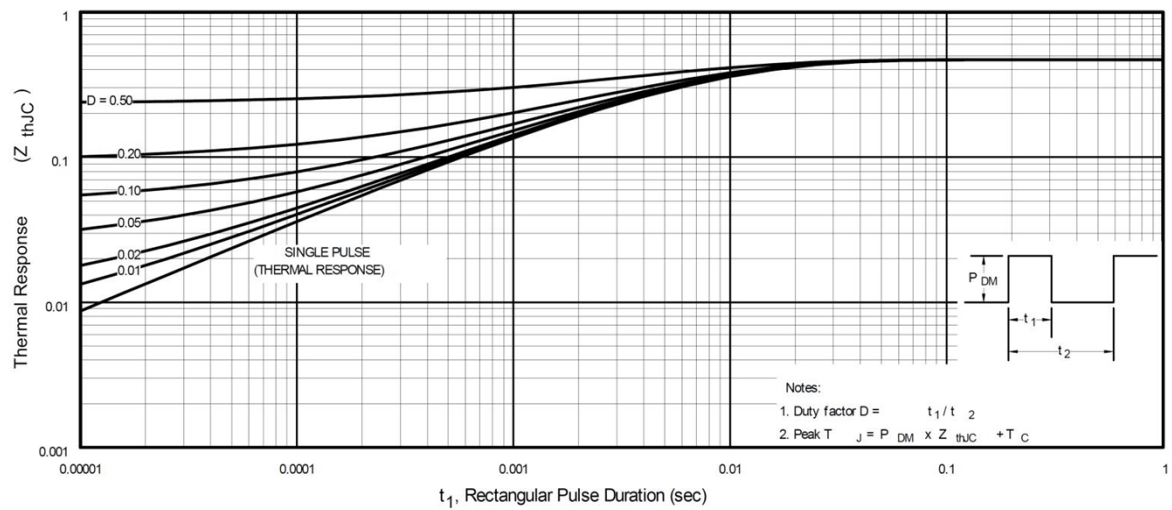
Maximum Safe Operating Area



Maximum Drain Current vs. Case Temperature

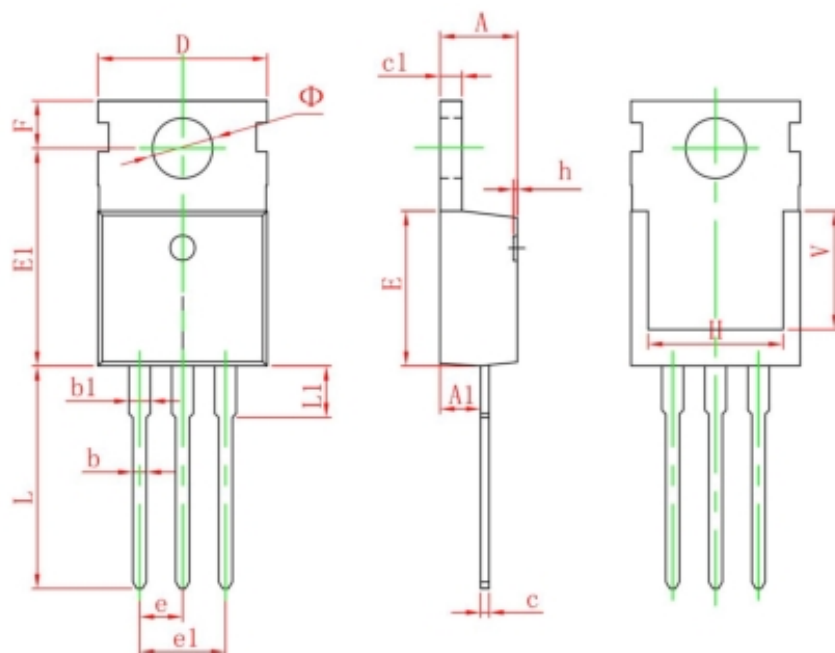


Maximum Avalanche Energy vs. Drain Current



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