

## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
80V	2.9mΩ@10V	200A

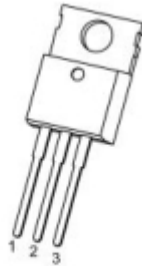
## Feature

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

## Applications

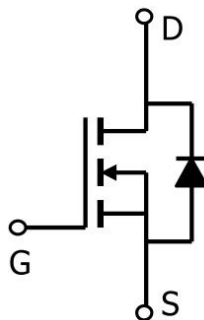
- Power switching application
- DC-DC Converter
- Power Management

## Package

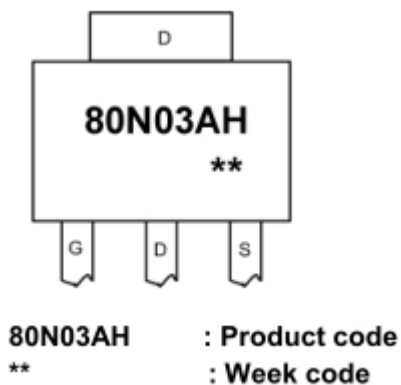


TO-220-3L(1:G 2:D 3:S)

## Circuit diagram



## Marking



## Absolute maximum ratings

(T<sub>a</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain source voltage	V <sub>DS</sub>	80	V
Gate source voltage	V <sub>GS</sub>	±20	V
Continuous drain current(T <sub>c</sub> =25°C)	I <sub>D</sub>	200	A
Pulsed drain current	I <sub>DM</sub>	800	A
Power dissipation(T <sub>c</sub> =25°C)	P <sub>D</sub>	300	W
Single pulsed avalanche energy <sup>1)</sup>	E <sub>AS</sub>	737	mJ
Thermal resistance, junction-case	R <sub>θJC</sub>	0.42	°C/W
Operation and storage temperature	T <sub>J</sub> , T <sub>STG</sub>	-55 to 150	°C

## Electrical characteristics

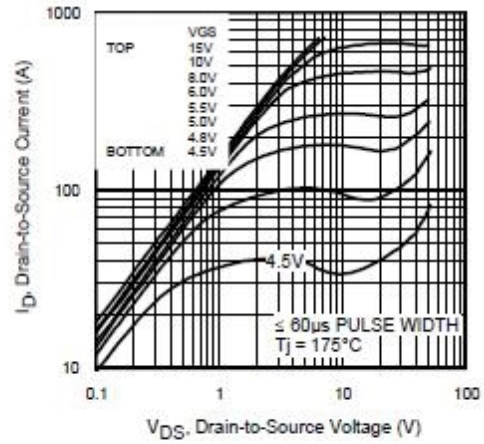
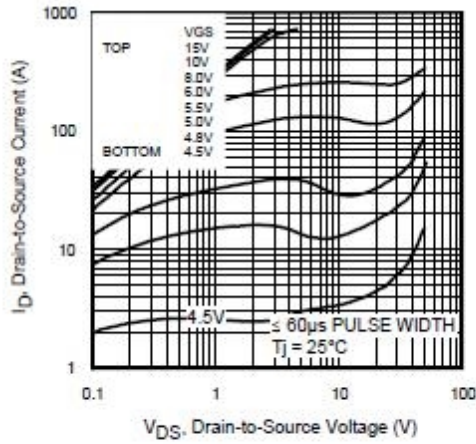
( $T_A=25^{\circ}\text{C}$ , unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	80			V
Drain Cut-Off Current	I <sub>DSS</sub>	V <sub>DS</sub> =68V, V <sub>GS</sub> = 0V			1	uA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±0.1	uA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	2	3	4	V
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =75A		2.9	3.5	mΩ
Dynamic Characteristics						
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V, f=1MHz		7610		pF
Output capacitance	C <sub>OSS</sub>			722		
Reverse transfer capacitance	C <sub>rss</sub>			386		
Switching Characteristics						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =10V, I <sub>D</sub> =75A		183		pF
Gate-Source Charge	Q <sub>gs</sub>			44		
Gate-Drain Charge	Q <sub>gd</sub>			65		
Turn-on Delay Time	T <sub>d(on)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =48V, I <sub>D</sub> =75A, R <sub>GEN</sub> =2.6Ω		29		nS
Turn-on Rise Time	T <sub>r</sub>			120		
Turn-Off Delay Time	T <sub>d(off)</sub>			68		
Turn-Off Fall Time	t <sub>f</sub>			74		
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = 1A, V <sub>GS</sub> = 0V			1.2	V

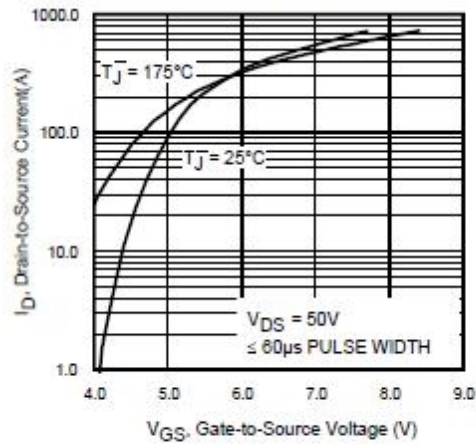
### Note:

1. E AS is tested at starting  $T_j = 25^{\circ}\text{C}$ ,  $V_{DD} = 30V, V_{GS} = 10V, L = 0.3mH, R_g = 25 m\Omega$ ;

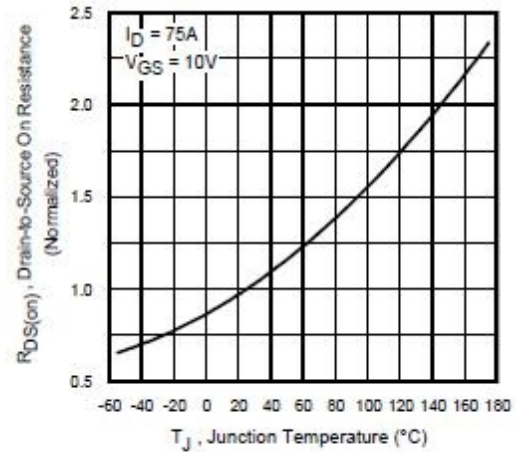
## Typical Characteristics



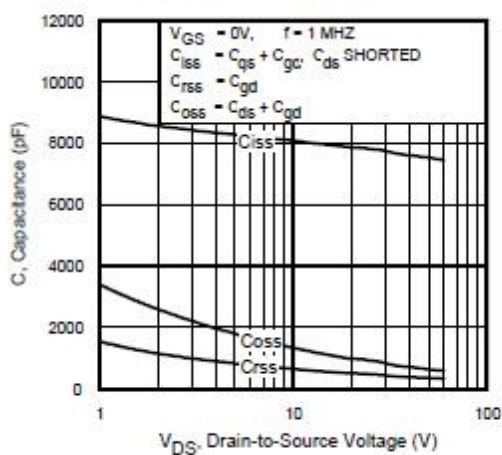
Typical Output Characteristics



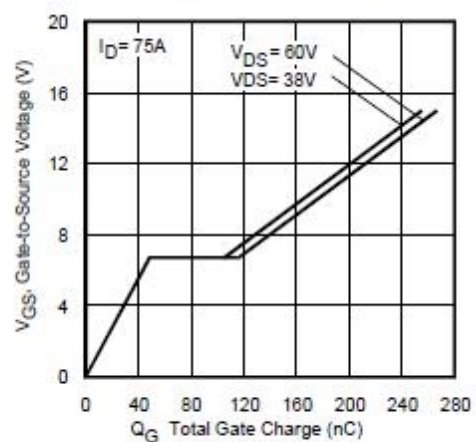
Typical Output Characteristics



Typical Transfer Characteristics

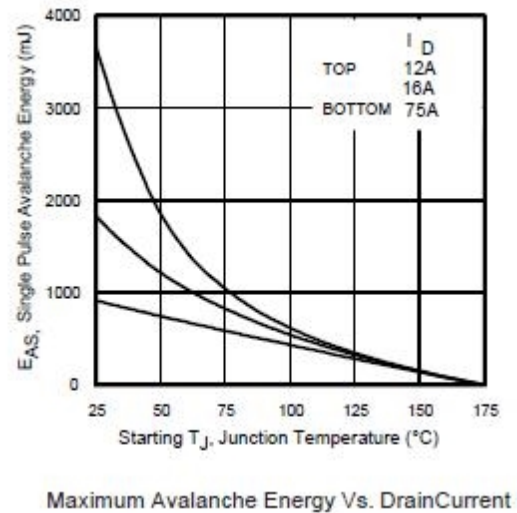
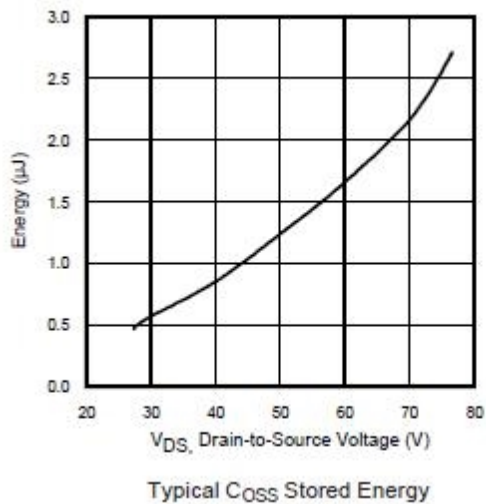
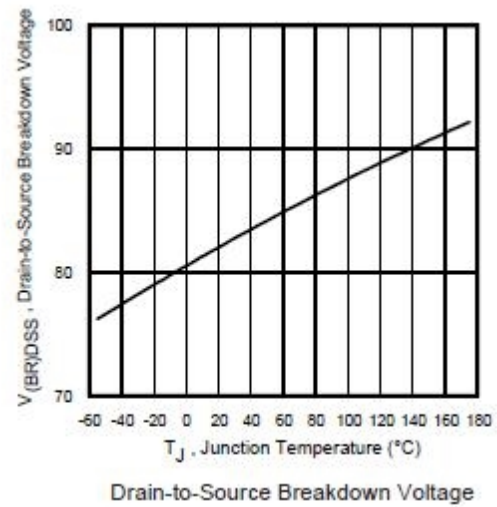
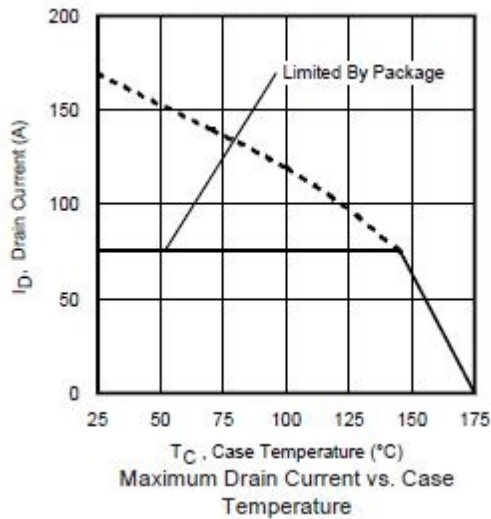
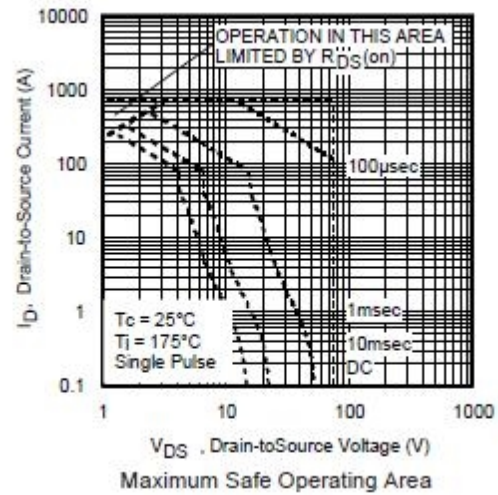
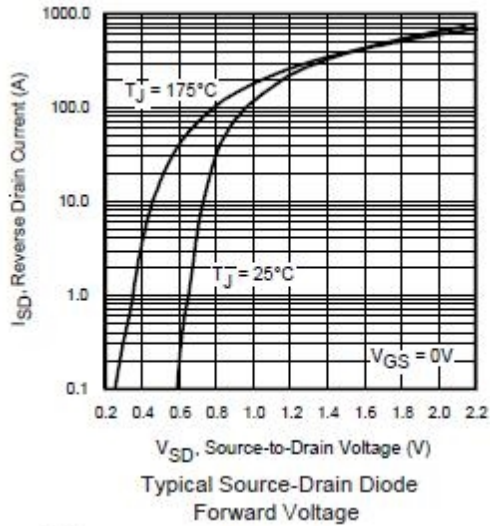


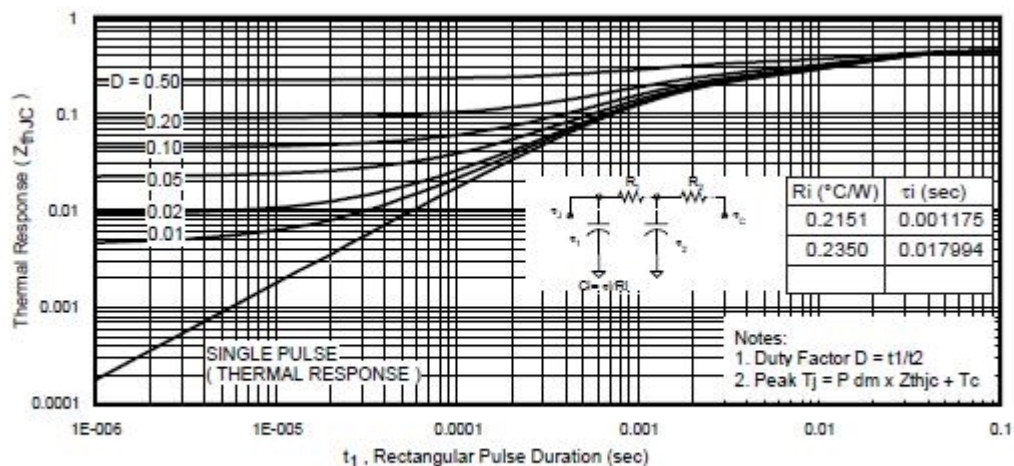
Normalized On-Resistance vs. Temperature



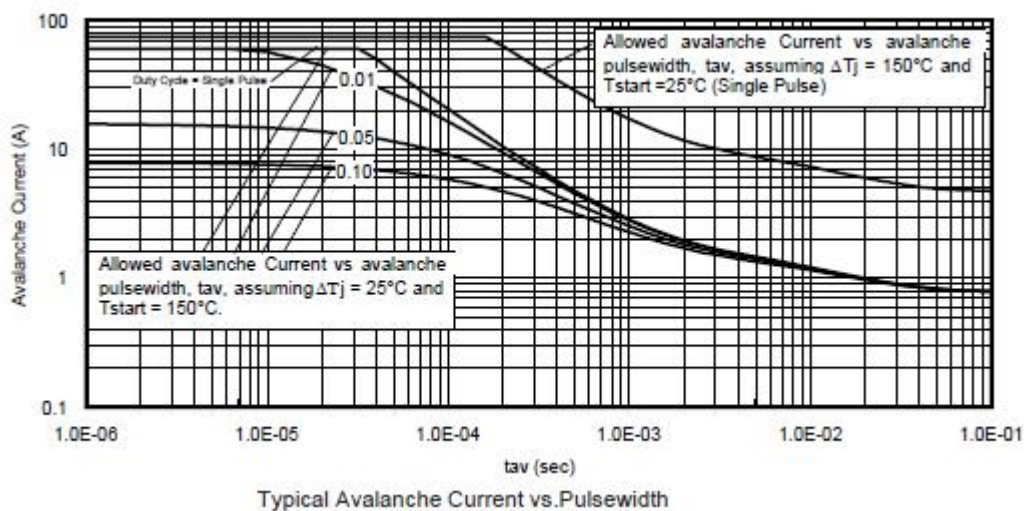
Typical Capacitance vs. Drain-to-Source Voltage

Typical Gate Charge vs. Gate-to-Source Voltage



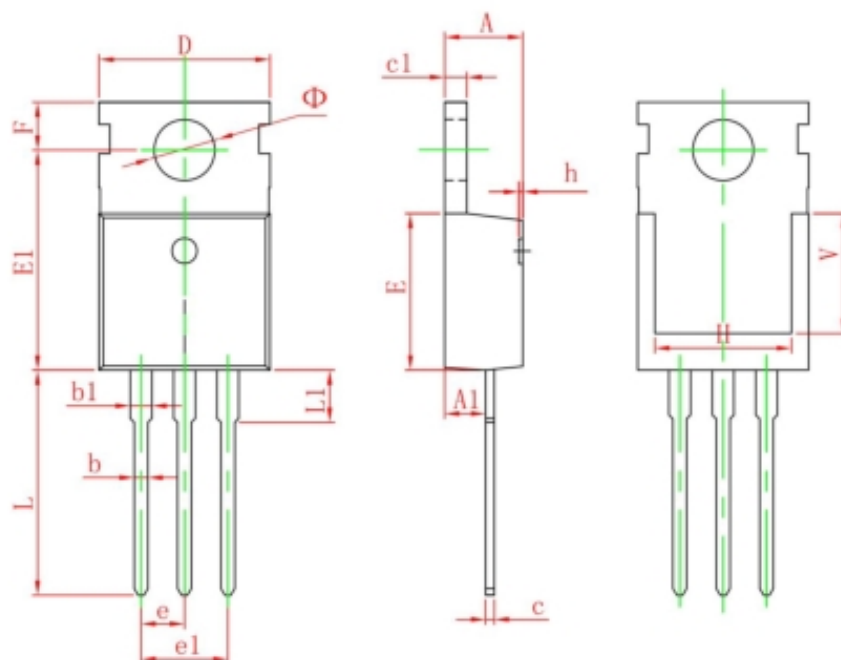


Maximum Effective Transient Thermal Impedance, Junction-to-Case





## TO-220-3L 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