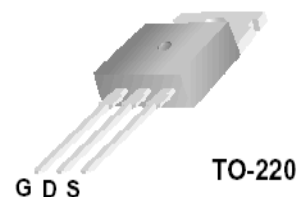
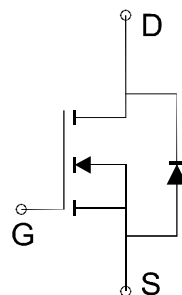


N-Channel 80V Power MOSFET

Features:

- Avalanche Rugged Technology
- Rugged Gate Oxide Technology
- High di/dt Capability
- Improved Gate Charge



Application

- Switching
- DC-DC converter and DC motor control
- UPS

$B_{VDSS} = 80 \text{ V}$,
 $R_{DS(ON)} = 11 \text{ m}\Omega$,
 Typ = $8.5 \text{ m}\Omega$
 $I_D = 75 \text{ A}$

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ Unless Otherwise Noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	80	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C=25^\circ\text{C}$	I_D	75	A
	$T_C=100^\circ\text{C}$		53	
Pulsed Drain Current ^a		I_{DM}	300	A
Source-drain Current		I_{SD}	75	A
Power Dissipation	$T_C=25^\circ\text{C}$	P_D	150	W
	$T_C=100^\circ\text{C}$		75	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 175	$^\circ\text{C}$
Avalanche Energy with Single Pulse ^b		E_{AS}	400	mJ
Thermal Resistance-Junction to Ambient*		$R_{\theta JA}$	Steady State	$^\circ\text{C/W}$
Thermal Resistance-Junction to Case		$R_{\theta JC}$	1.0	

a. Pulse width limited by safe operating area

b. Starting $T_J=25^\circ\text{C}$, $I_D=30\text{A}$, $V_{DD}=37.5\text{V}$

N-Channel 80V Power MOSFET
Electrical Characteristics ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV_{DS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	80			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	4.0		6.5	V
I_{GSS}	Gate-Body Leakage	$V_{GS}=\pm 20V$			± 100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=\text{Max Rating}, V_{GS}=0V$			1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance*	$V_{GS}=10V, I_D=40A$		8.5	11	m Ω
G_{FS}	Forward Transconductance*	$V_{GS}=15V, I_D=40A$		20		S
DYNAMIC						
Q_g	Total Gate Charge	$V_{DD}=60V, V_{GS}=10V, I_D=75A$		120		nC
Q_{gs}	Gate-Source Charge			54		
Q_{gd}	Gate-Drain Charge			38		
R_g	Gate Resistance	$f=1\text{MHz}$		2.3		Ω
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V,$ $f=1\text{MHz}$		7400		pF
C_{oss}	Output Capacitance			450		
C_{rss}	Reverse Transfer Capacitance			140		
$t_{d(on)}$	Turn-On Delay Time	$V_{GS}=10V, R_L=15\Omega$ $V_{DD}=37.5V, R_G=4.7\Omega$		80		ns
t_r	Turn-On Rise Time			37		
$t_{d(off)}$	Turn-Off Delay Time			140		
t_f	Turn-Off Fall Time			27		

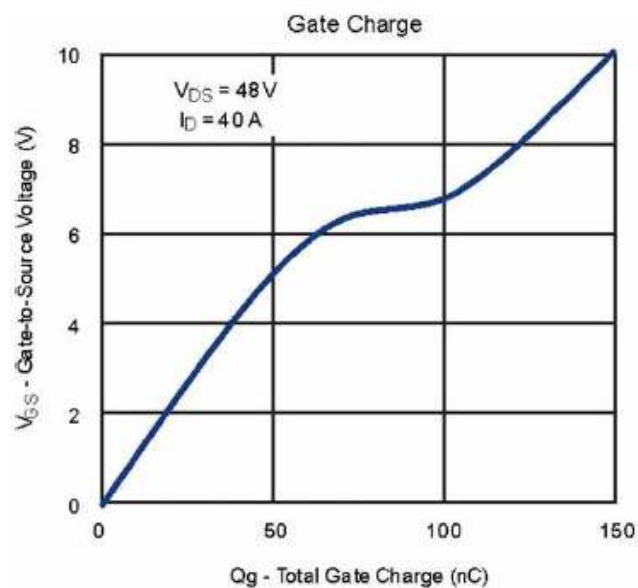
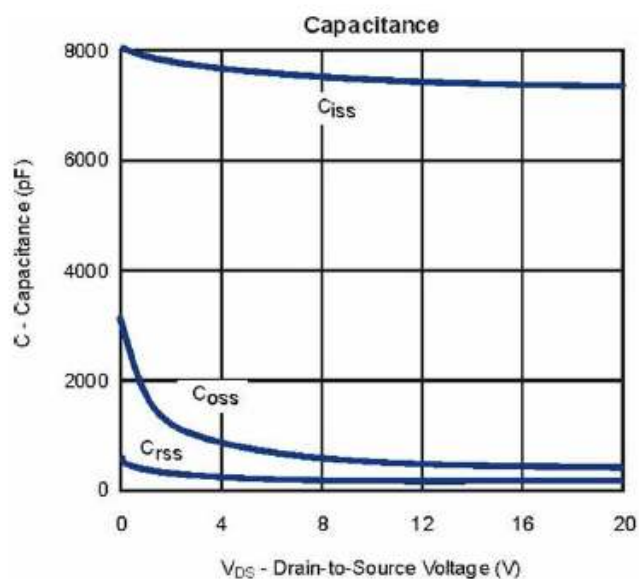
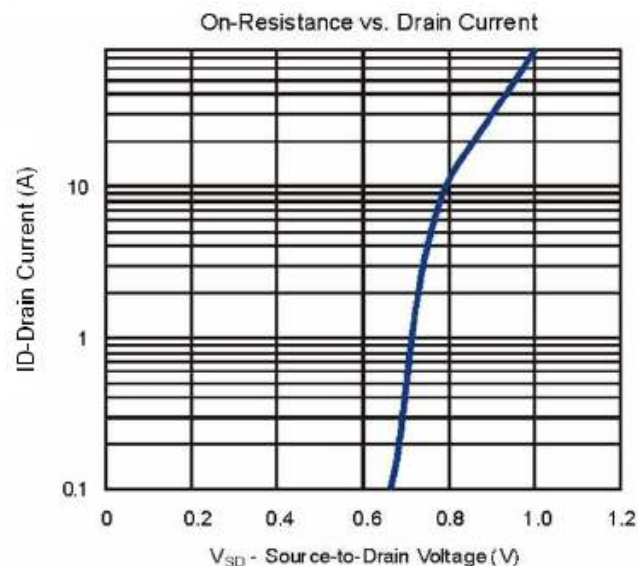
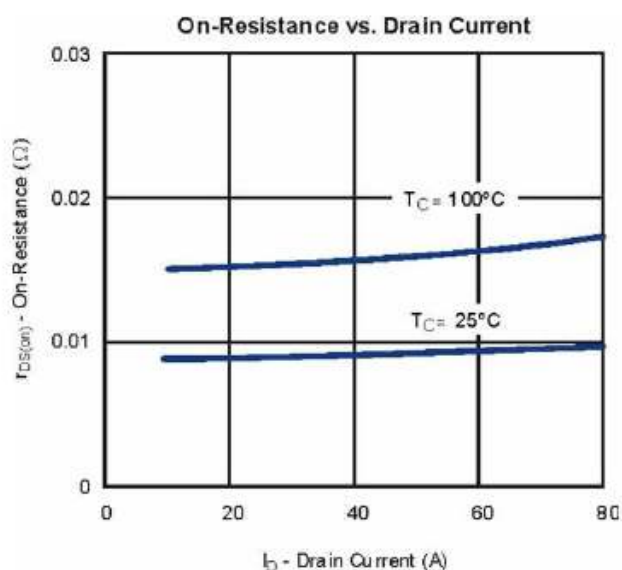
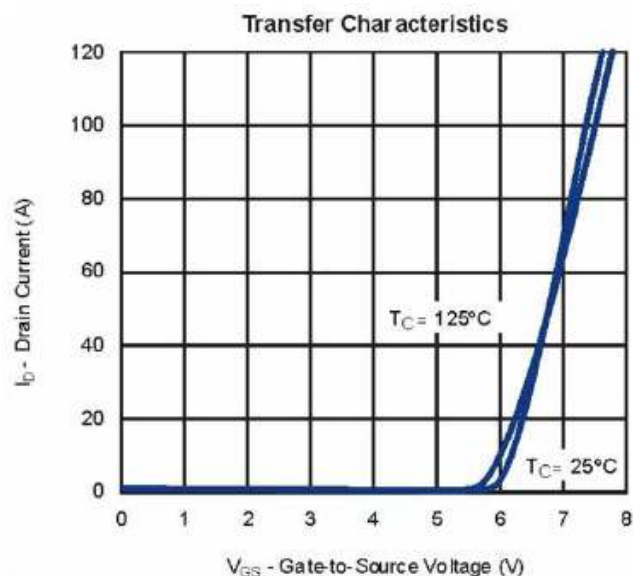
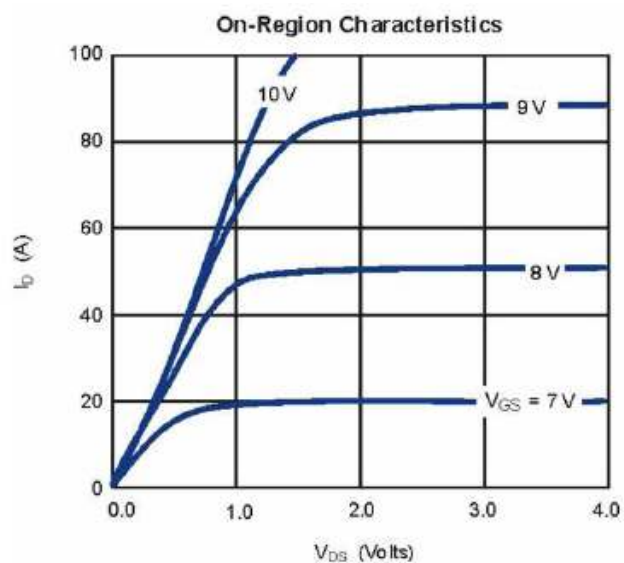
Source-Drain Diode Ratings and Characteristics

Symbol	Characteristic	Min.	Typ.	Max.	Units	Test Condition
I_S	Continuous Source current			75	A	Integral reverse PN diode in The MOSFET
I_{SM}	Pulsed Source Current			300		
V_{SD}	Diode Forward voltage			1.5	V	$I_S=25A, V_{GS}=0V$

Note: Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

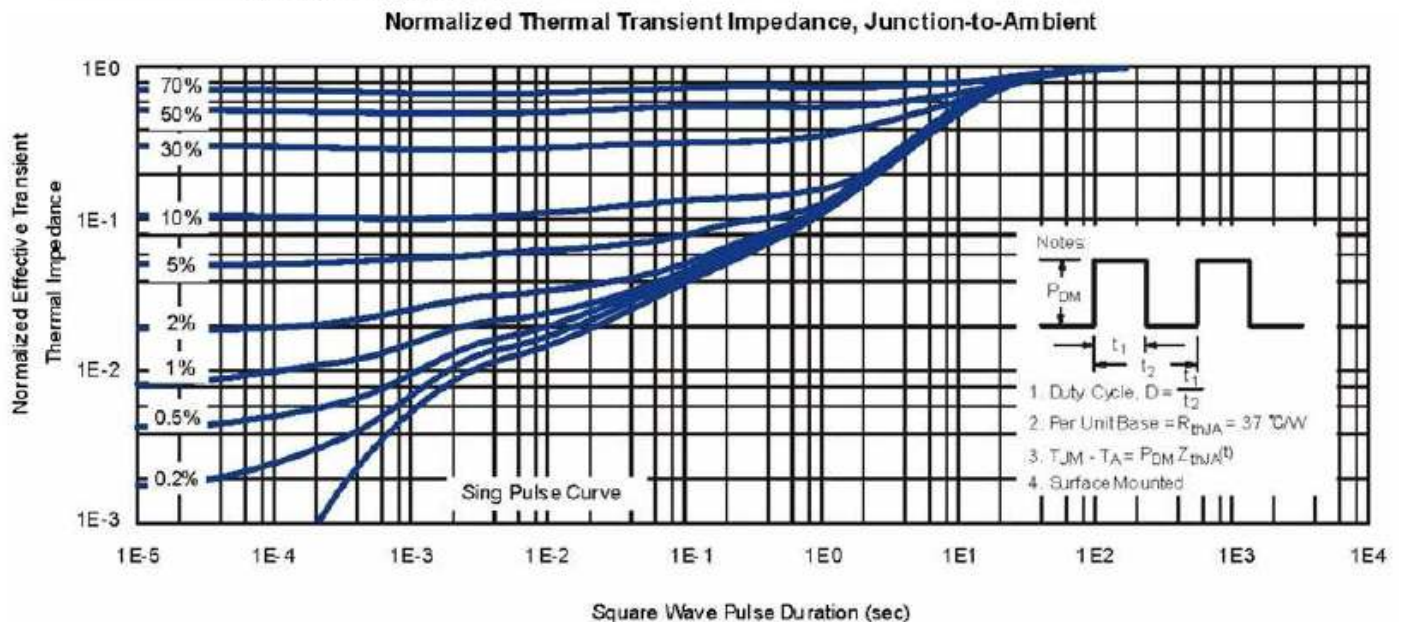
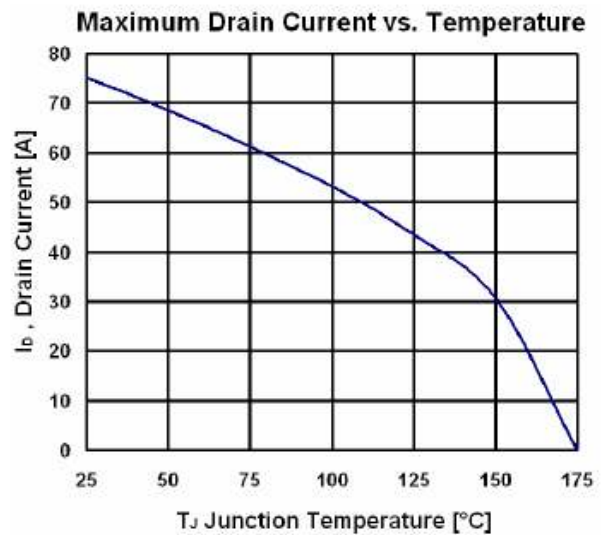
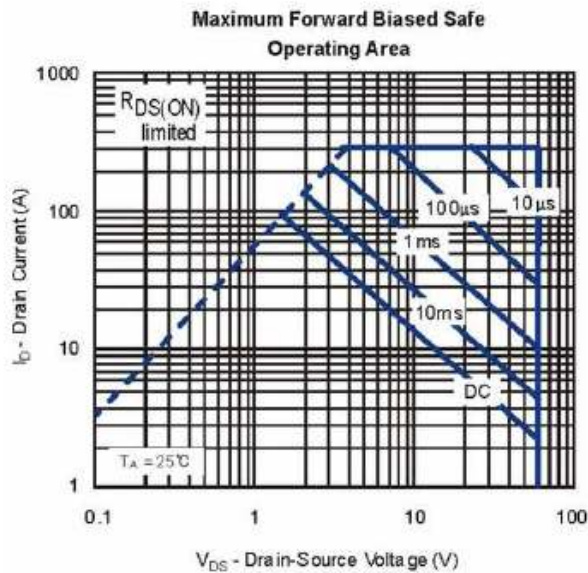
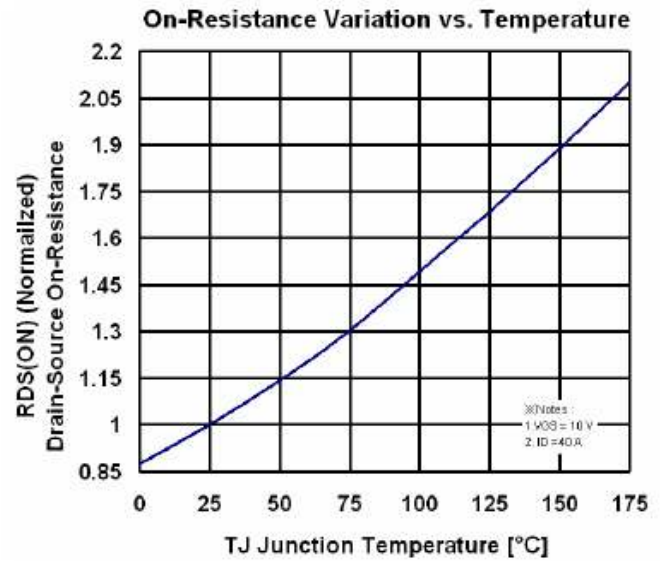
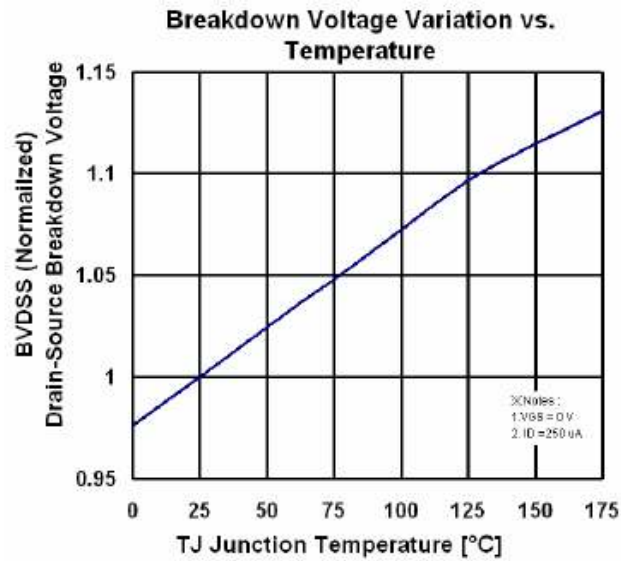
N-Channel 80V Power MOSFET

Typical Characteristics (TJ = 25°C Noted)



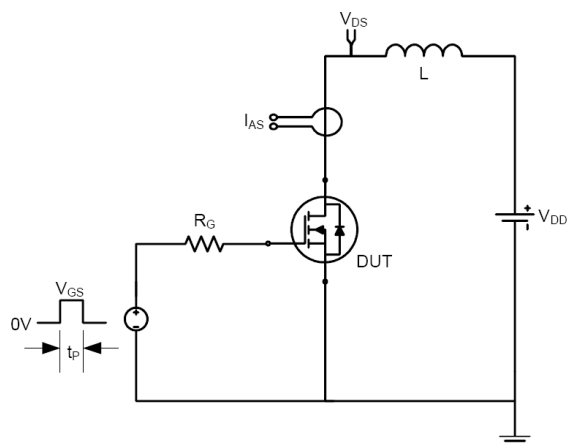
N-Channel 80V Power MOSFET

Typical Characteristics (T_J = 25°C Noted)

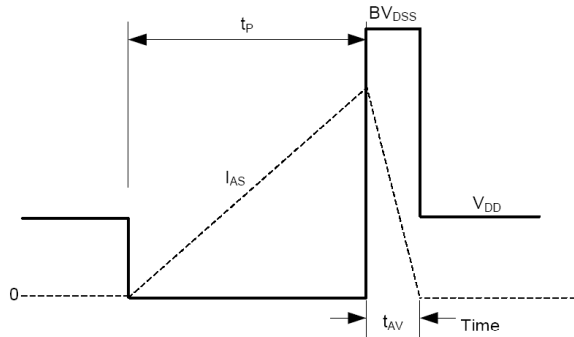


N-Channel 80V Power MOSFET

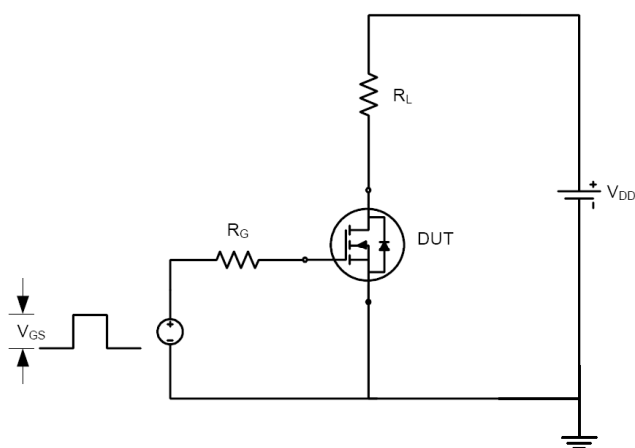
Test Circuit and Waveform



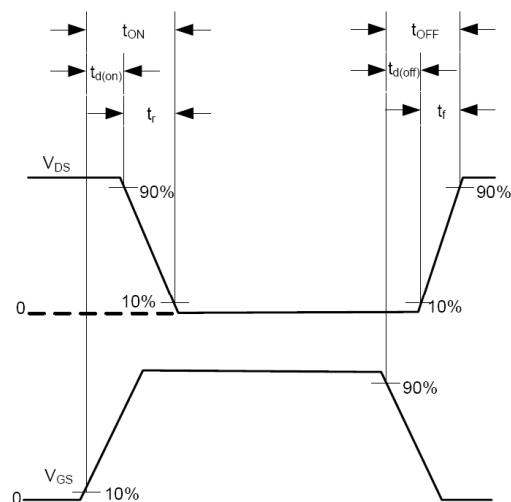
Unclamped Energy Test Circuit



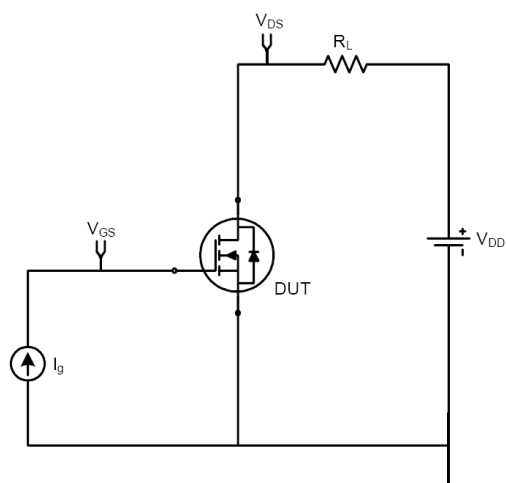
Unclamped Energy Waveforms



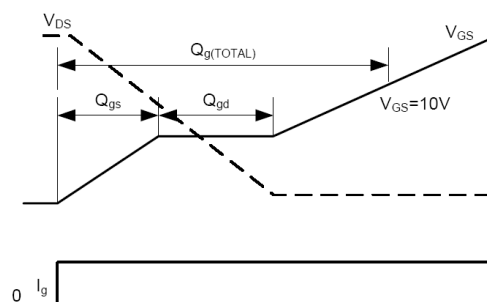
Switching Time Test Circuit



Resistive Switching Waveforms



Gate Charge Test Circuit

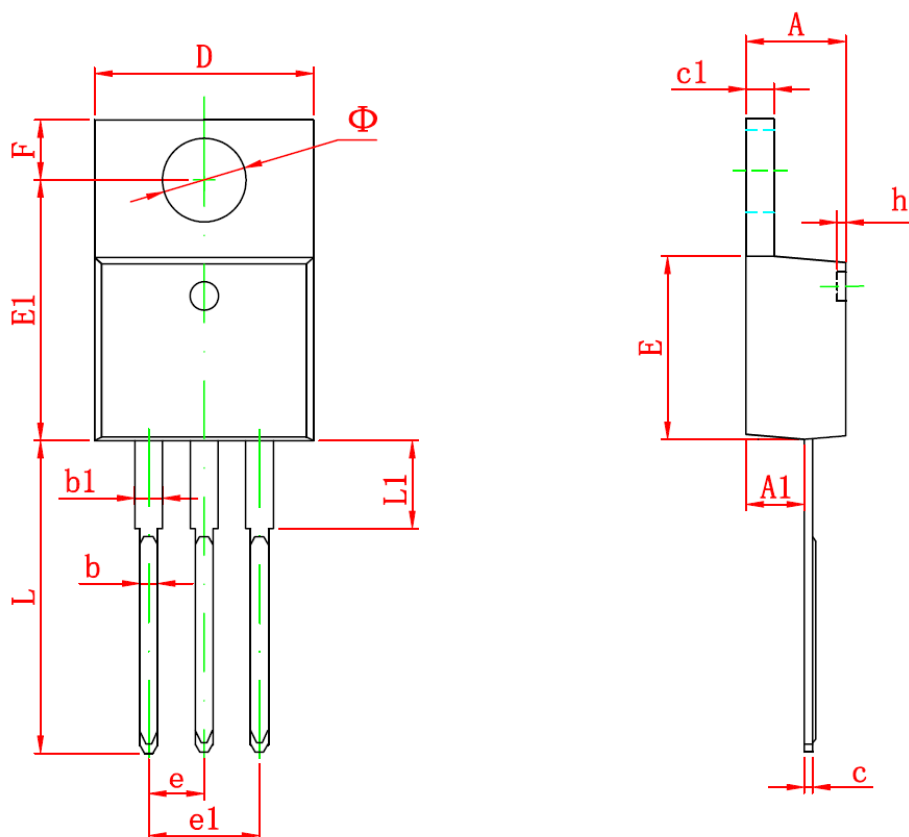


Gate Charge Waveforms

N-Channel 80V Power MOSFET

Package Dimension

TO-220



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
Φ	3.735	3.935	0.147	0.155

N-Channel 80V Power MOSFET**Important Notice and Disclaimer**

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