

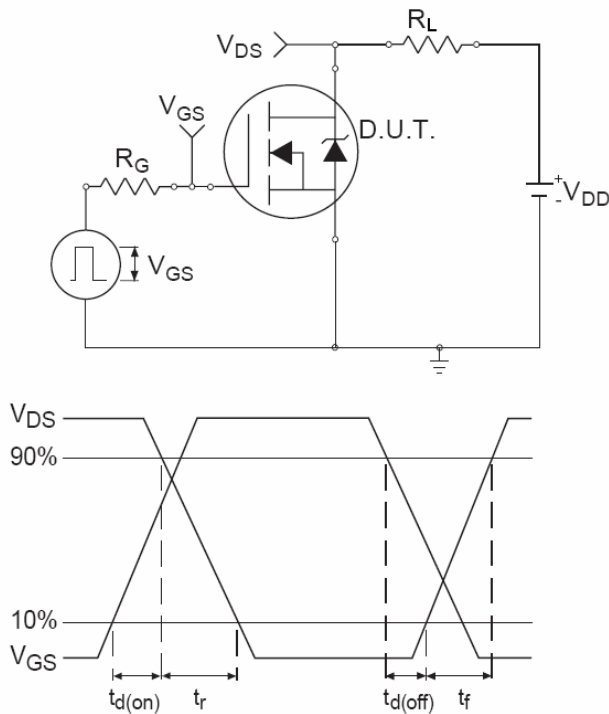
**Features**

- V<sub>DSS</sub>=68V / V<sub>GS</sub>=±25V / I<sub>D</sub>=80A  
R<sub>DS(ON)</sub>=10.8mΩ(Max.)@V<sub>GS</sub>=10V
- Avalanche Rated
- Reliable and Rugged
- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance

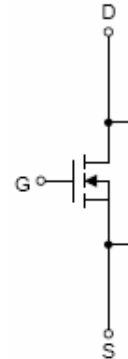
**Applications**

- Power Management in Inverter System

**Switching Time Test Circuit and Waveforms**



**Pin Description**



Marking and pin Assignment



TO-220-3L top view

**Package Marking And Ordering Information**

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
PTI 68 25 80	PTI 68 25 80	TO-220-3L		-	-

**Absolute Maximum Ratings** (T<sub>A</sub>=25°C unless otherwise noted)

Symbol	Parameter	Typical	Unit	
V <sub>DSS</sub>	Drain-Source Voltage	68	V	
V <sub>GSS</sub>	Gate -Source Voltage	±25	V	
I <sub>D</sub>	Continuous Drain Current	T <sub>C</sub> =100°C	75	A
			80	A
I <sub>DP</sub>	300us Pulsed Drain Current Tested	300	A	
I <sub>S</sub>	Diode Continuous Forward Current	80	A	
T <sub>J</sub>	Operating Junction Temperature	175	°C	
T <sub>STG</sub>	Storage Temperature Range	-55 ~ 175	°C	

**Electrical Characteristics** (T<sub>A</sub>=25°C unless otherwise noted)

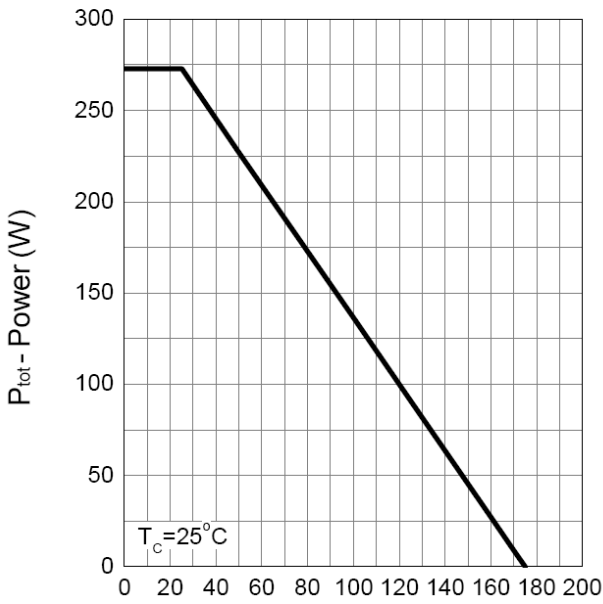
Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
<b>Static Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	68			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V T <sub>J</sub> =85°C			1	uA
					30	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	2	3	4	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>GS</sub> =±25V, V <sub>DS</sub> =0V			±100	nA
R <sub>DSON</sub> <sup>1</sup>	Drain-Source On-Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =40A		9	10.8	mΩ
<b>Diode Characteristics</b>						
V <sub>SD</sub> <sup>1</sup>	Diode Forward Voltage	I <sub>SD</sub> =20A, V <sub>GS</sub> =0V		0.8	1.1	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>SD</sub> =40A,		55		ns
Q <sub>rr</sub>	Reverse Recovery Charge	dI <sub>SD</sub> /dt=100A/us		117		nC
<b>Dynamic Characteristics<sup>2</sup></b>						
R <sub>G</sub>	Gate Resistance	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, Frequency=1MHz		1.5		Ω
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =30V Frequency=1MHz		2200		pF
C <sub>oss</sub>	Output Capacitance			470		
C <sub>rss</sub>	Reverse Transfer Capacitance			190		
t <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DD</sub> =15V, R <sub>L</sub> =15Ω I <sub>D</sub> =1.0A, V <sub>GEN</sub> =-10V R <sub>G</sub> =6Ω		23	42	ns
t <sub>r</sub>	Turn-On Rise Time			12	23	
t <sub>d(off)</sub>	Turn-Off Delay Time			77	140	
t <sub>f</sub>	Turn-Off Fall Time			69	125	
<b>Gate Charge Characteristics<sup>2</sup></b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-4.5V I <sub>D</sub> =2.5A		52	73	nC
Q <sub>gs</sub>	Gate-Source Charge			19		
Q <sub>gd</sub>	Gate-Drain Charge			27		

Note: 1: Pulse test ; pulse width ≤ 300ns, duty cycle ≤ 2%.

2: Guaranteed by design, not subject to production testing.

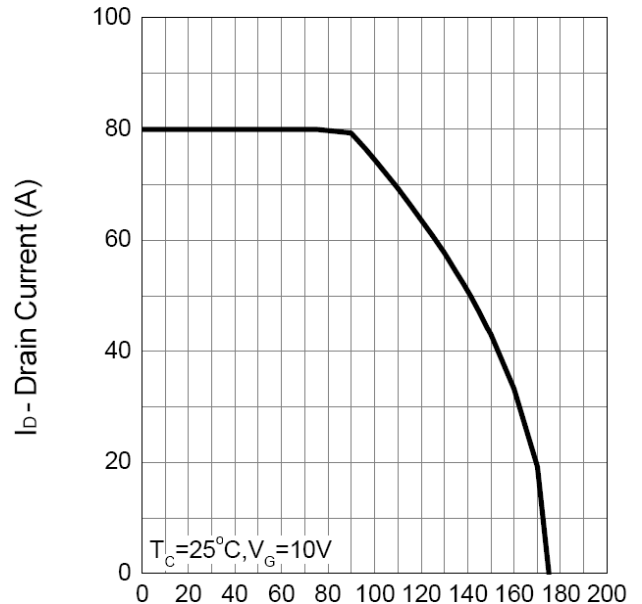
**Typical Characteristics**

Power Dissipation



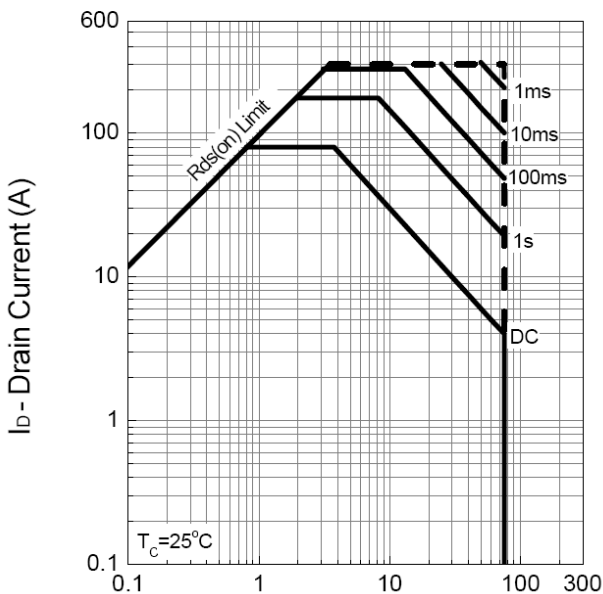
T<sub>j</sub> - Junction Temperature (°C)

Drain Current



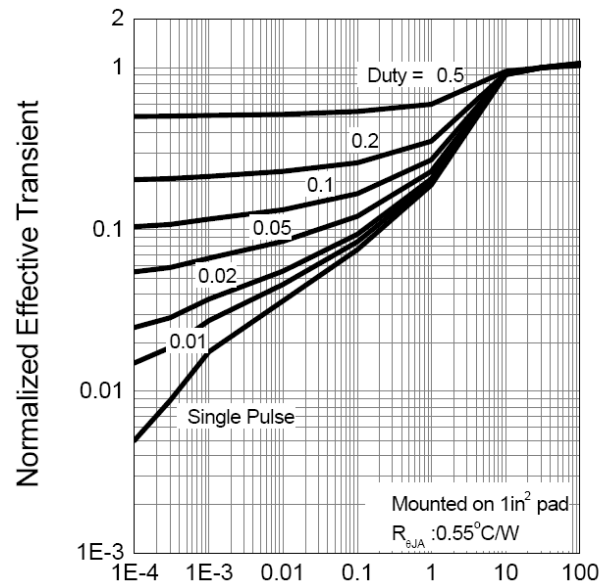
T<sub>j</sub> - Junction Temperature (°C)

Safe Operation Area



V<sub>DS</sub> - Drain - Source Voltage (V)

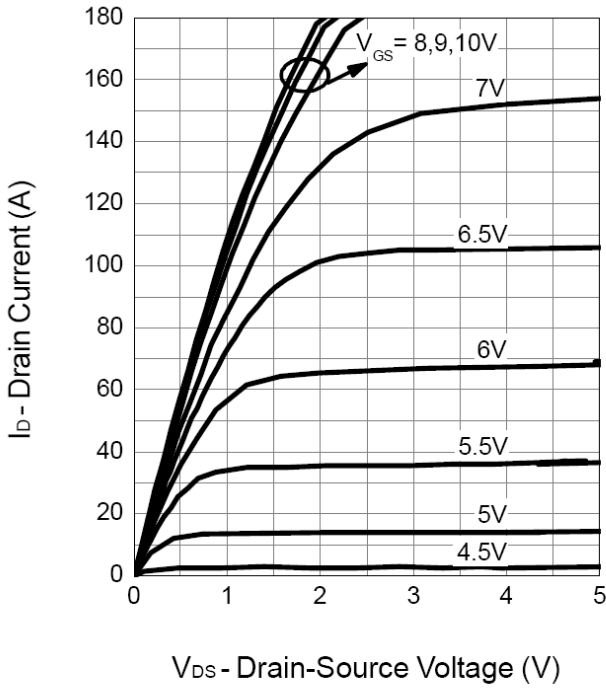
Thermal Transient Impedance



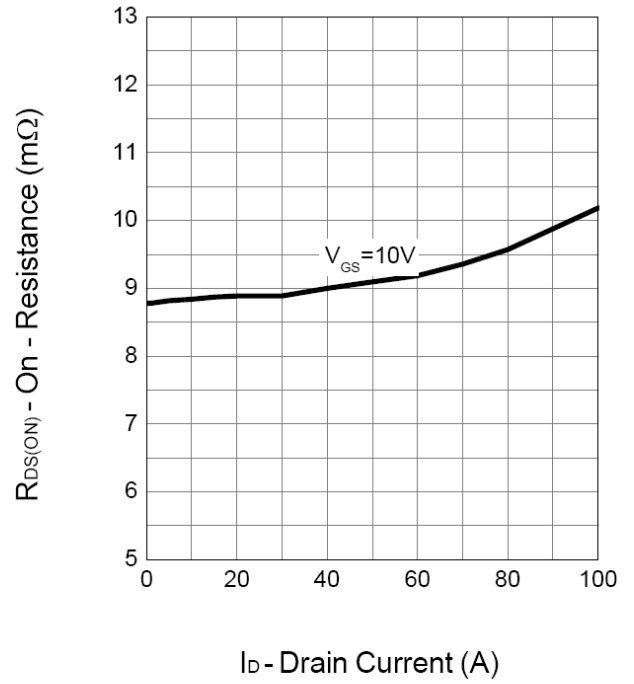
Square Wave Pulse Duration (sec)

Typical Characteristics (Cont.)

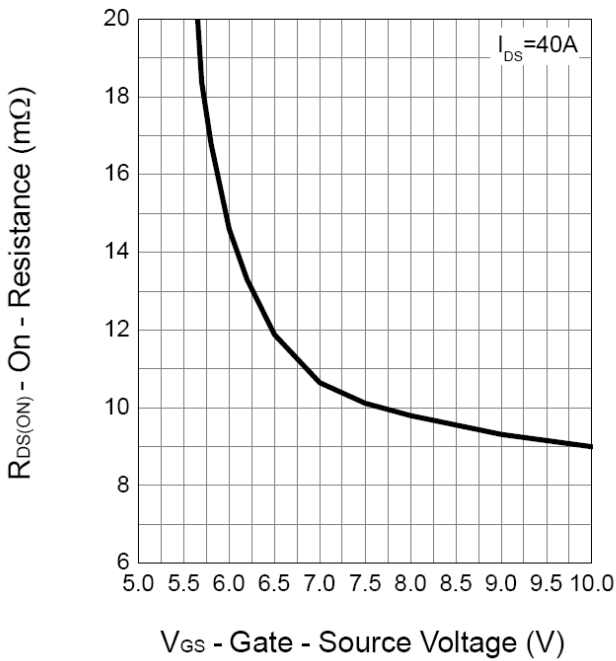
Output Characteristics



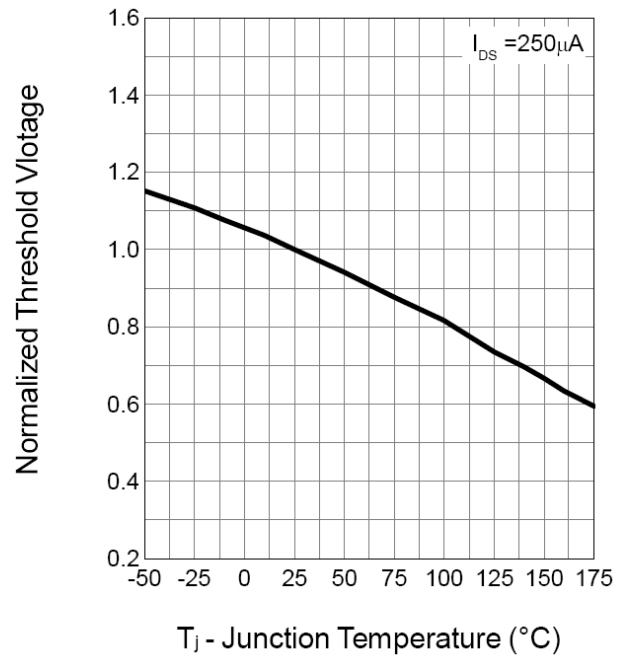
Drain-Source On Resistance



Gate-Source On Resistance

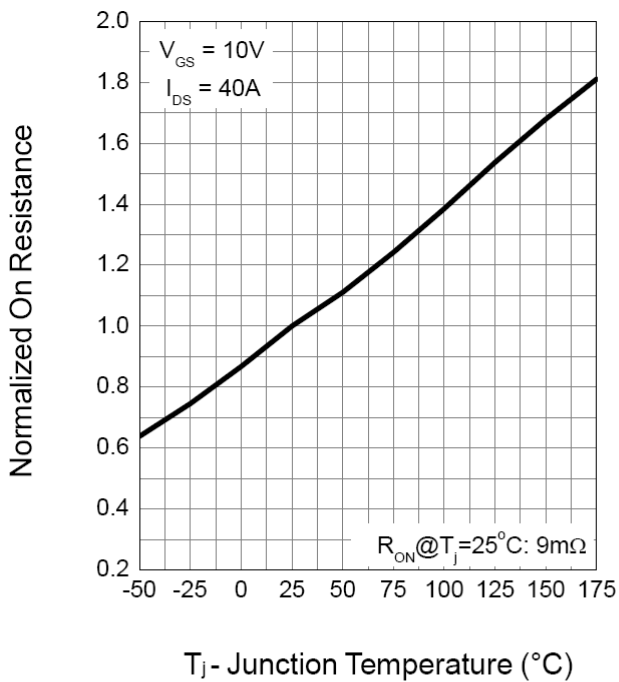


Gate Threshold Voltage

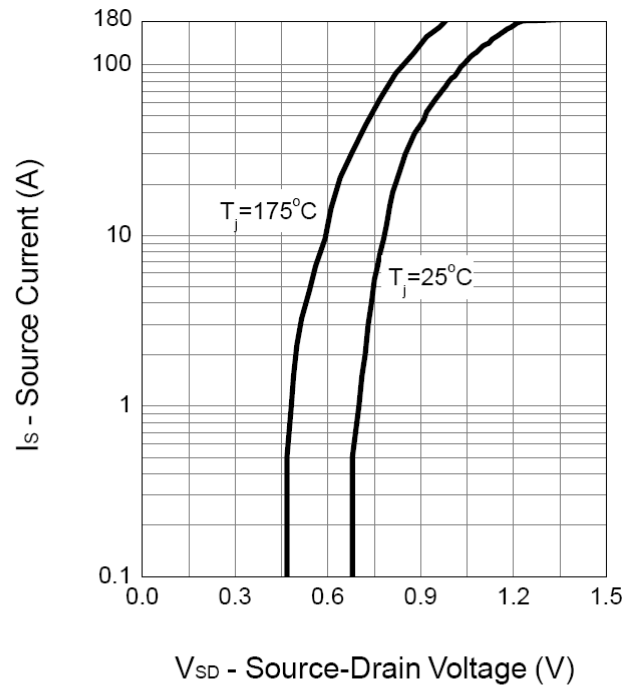


Typical Characteristics (Cont.)

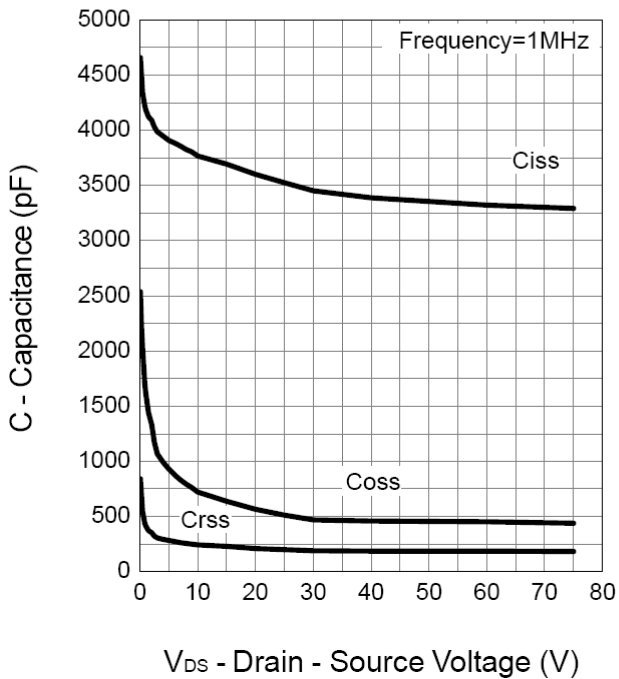
Drain-Source On Resistance



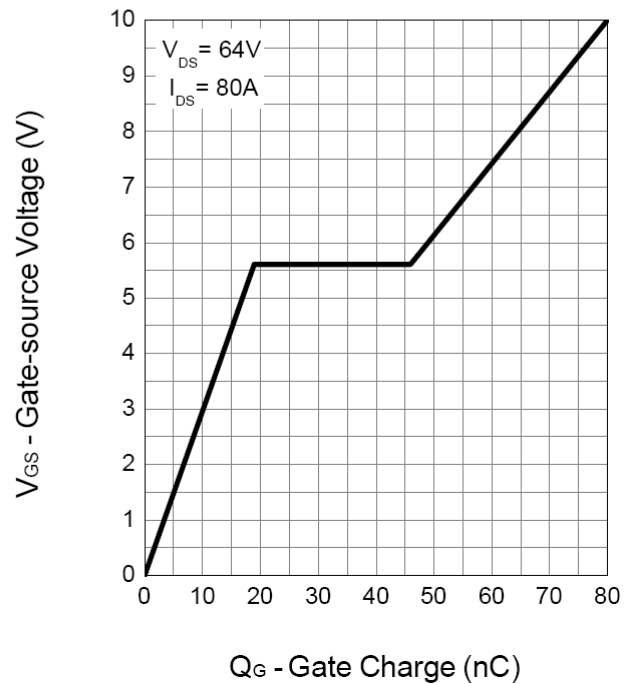
Source-Drain Diode Forward



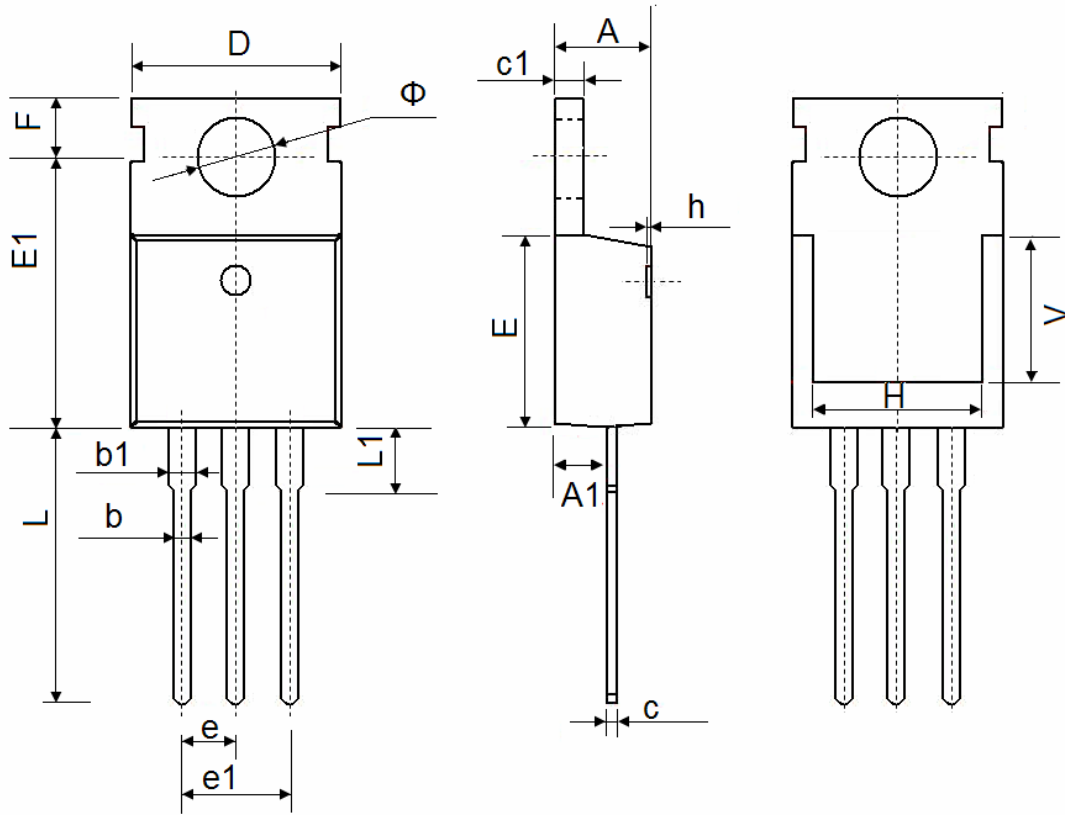
Capacitance



Gate Charge



### 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	8.9500	9.750	0.352	0.384
E1	12.650	12.950	0.498	0.510
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	7.500 REF.		0.295 REF.	
Φ	3.400	3.800	0.134	0.150

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