SPN3632
N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN3632 is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application , notebook computer power management and other battery powered circuits where high-side switching .

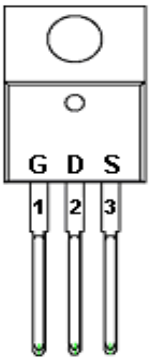
APPLICATIONS

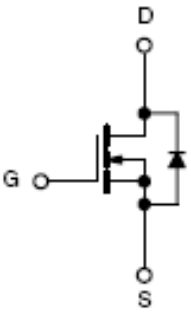
- DC/DC Converter
- Load Switch
- SMPS Secondary Side Synchronous Rectifier

FEATURES

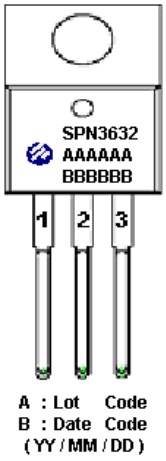
- 100V/80A,$R_{DS(ON)}$= 8.8mΩ@V_{GS}= 10V
- 100V/40A,$R_{DS(ON)}$= 13mΩ@V_{GS}= 6.0V
- 100V/10A,$R_{DS(ON)}$= 10mΩ@V_{GS}= 4.5V
- Super high density cell design for extremely low RDS (ON)
- Exceptional on-resistance and maximum DC current capability
- TO-220-3L package design

PIN CONFIGURATION(TO-220-3L)





PART MARKING



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N-Channel Enhancement Mode MOSFET

PIN DESCRIPTION

Pin	Symbol	Description
1	G	Gate
2	D	Drain
3	S	Source

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN3632T220TGB	TO-220-3L	SPN3632

※ SPN3632T220TGB: Tube ; Pb – Free; Halogen – Free

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	110	V
Gate –Source Voltage		V_{GSS}	±20	V
Continuous Drain Current(T_J=150℃)	T_A=25℃	I_D	90	A
	T_A=70℃		90	
Pulsed Drain Current		I_{DM}	240	A
Avalanche Current		I_{AS}	60	A
Power Dissipation	T_A=25℃	P_D	62.5	W
	T_A=70℃		3.38	
Avalanche Energy with Single Pulse (Tj=25℃, L = 0.12mH , I_{AS} = 75A , V_{DD} = 80V.)		EAS	335	mJ
Operating Junction Temperature		T_J	-55/150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	2	℃/W

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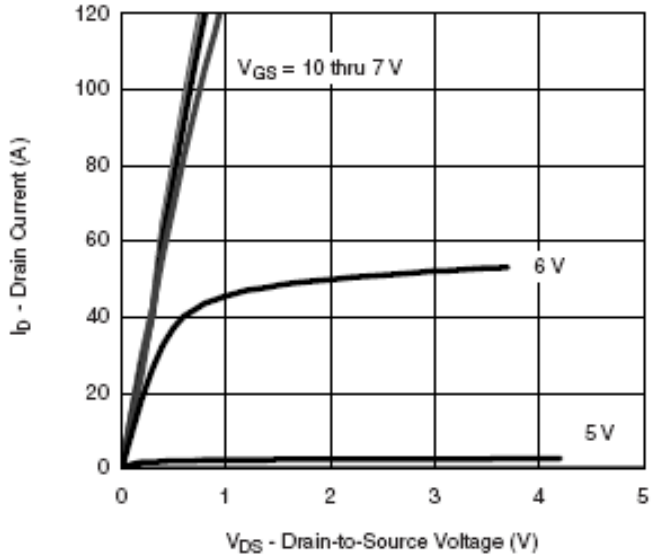
N-Channel Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS

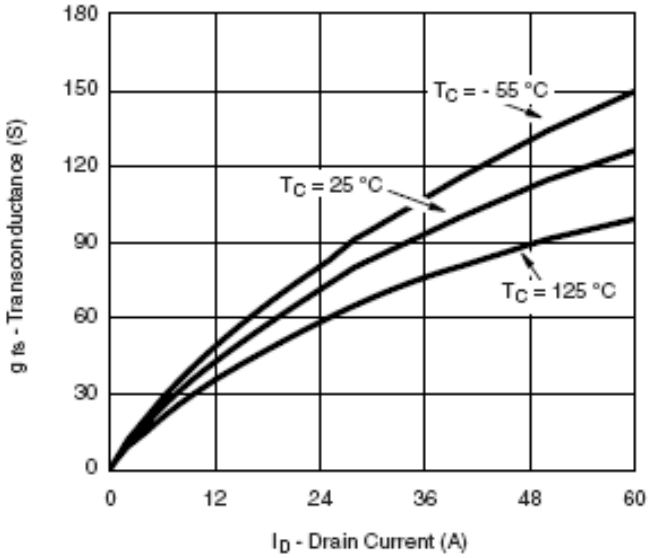
(T_A=25℃ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250uA	100			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	1.0		3.0	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V,V_{GS}=0V			1	uA
		V_{DS}=100V,V_{GS}=0V T_J = 150 ℃			250	
On-State Drain Current	$I_{D(on)}$	V_{DS}≥10V,V_{GS} =10V	70			A
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}= 10V,I_D=80A		7.5	8.5	mΩ
		V_{GS}= 6.0V,I_D=30A		8.5	9.8	
		V_{GS}= 4.5V,I_D=10A		8.2	10.0	
Forward Transconductance	gfs	V_{DS}=15V,I_D=20A		62		S
Diode Forward Voltage	V_{SD}	I_S=30A,V_{GS} =0V			1.5	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=50V,V_{GS}=10V I_D= 20A		100		nC
Gate-Source Charge	Q_{gs}			35		
Gate-Drain Charge	Q_{gd}			25		
Input Capacitance	C_{iss}	V_{DS}=50VV_{GS}=0V f=1MHz		6500		pF
Output Capacitance	C_{oss}			650		
Reverse Transfer Capacitance	C_{rss}			190		
Turn-On Time	$t_{d(on)}$	V_{DD}=50V,R_L=0.6Ω I_D≡20A,V_{GEN}=10V R_G=1.0Ω		25		nS
	t_r			20		
Turn-Off Time	$t_{d(off)}$			30		
	t_f			10		

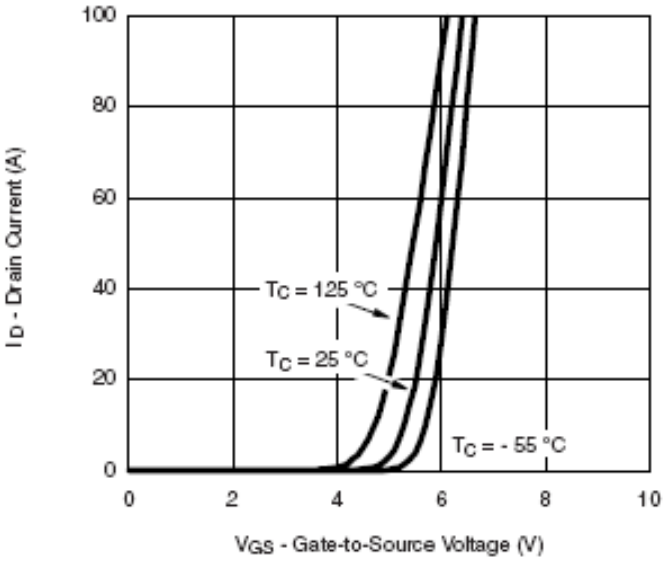
TYPICAL CHARACTERISTICS



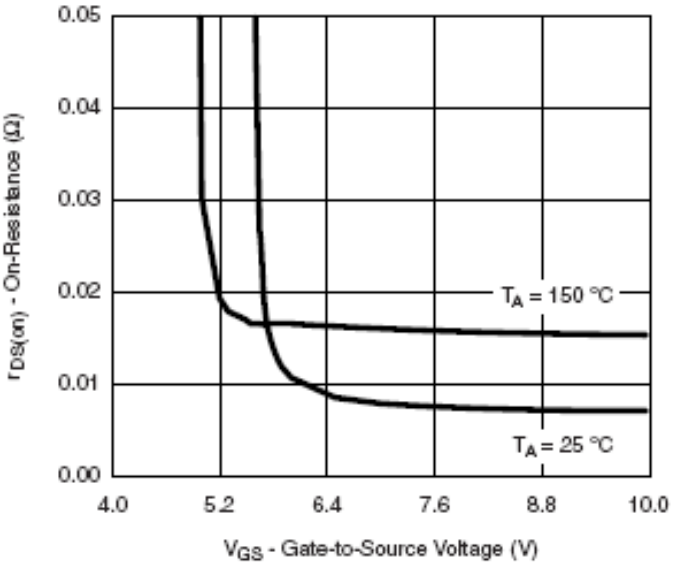
Output Characteristics



Transconductance

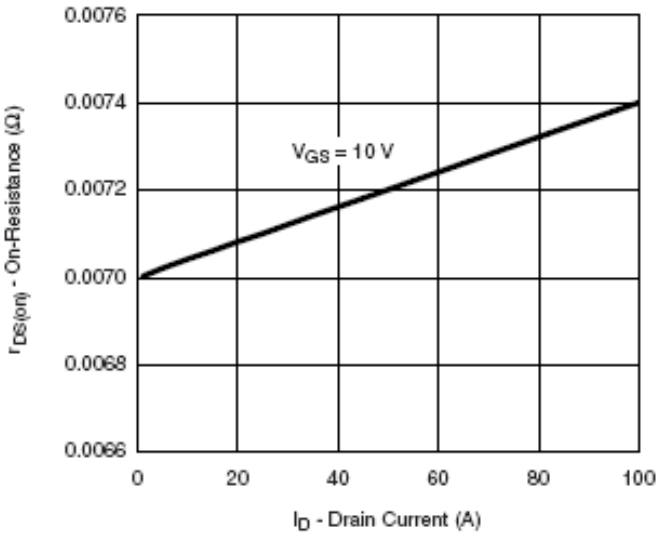


Transfer Characteristics

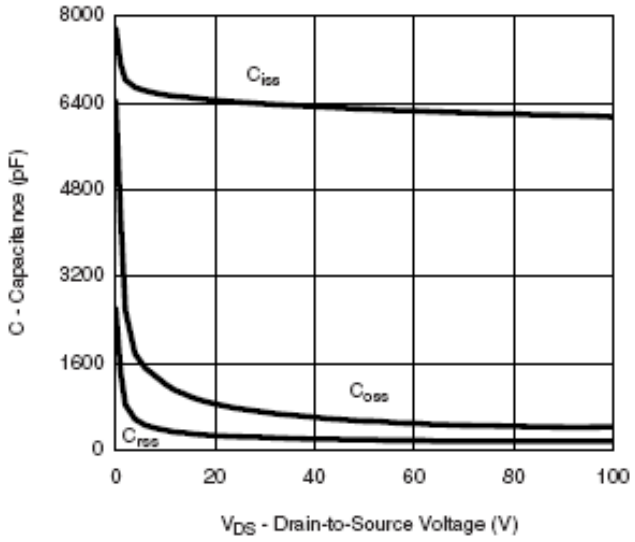


On-resistance vs. Gate-to-Source Voltage

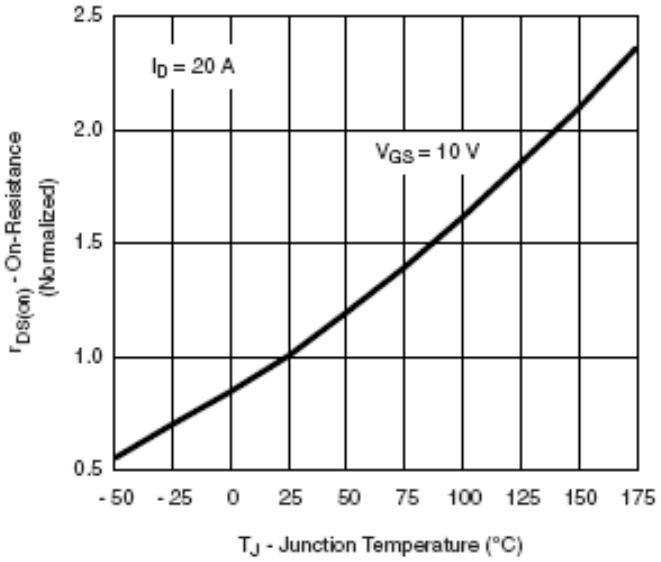
TYPICAL CHARACTERISTICS



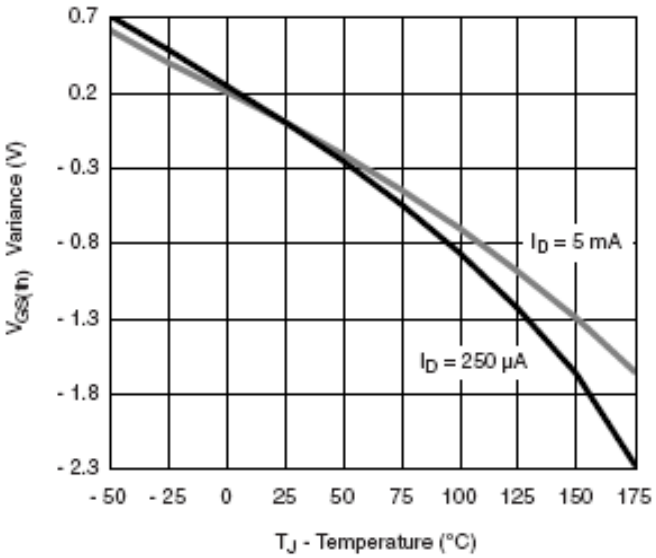
On-Resistance vs. Drain Current



Capacitance

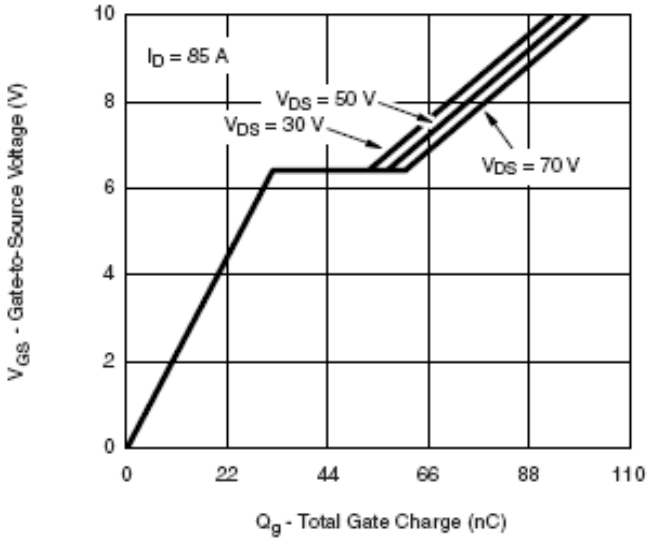


On-Resistance vs. Junction Temperature

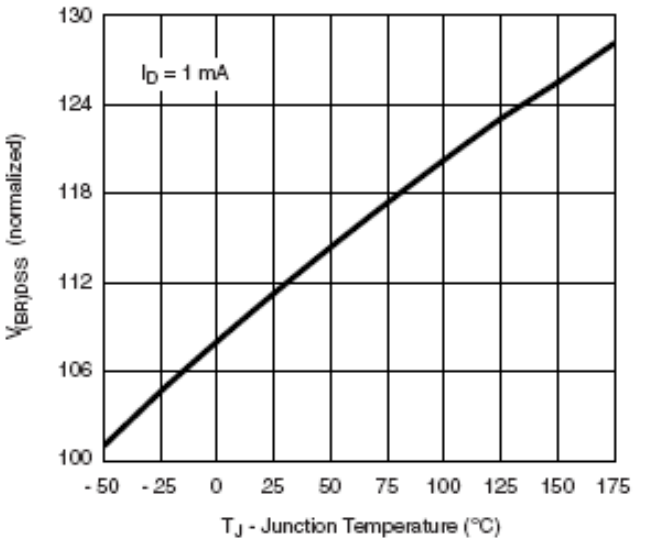


Threshold Voltage

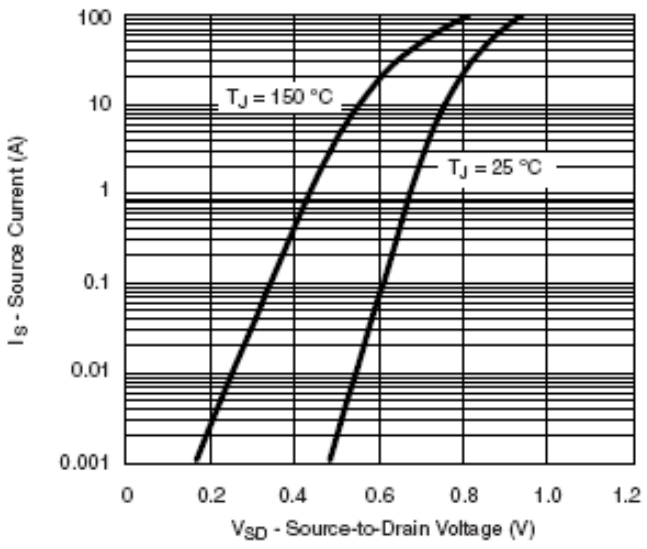
TYPICAL CHARACTERISTICS



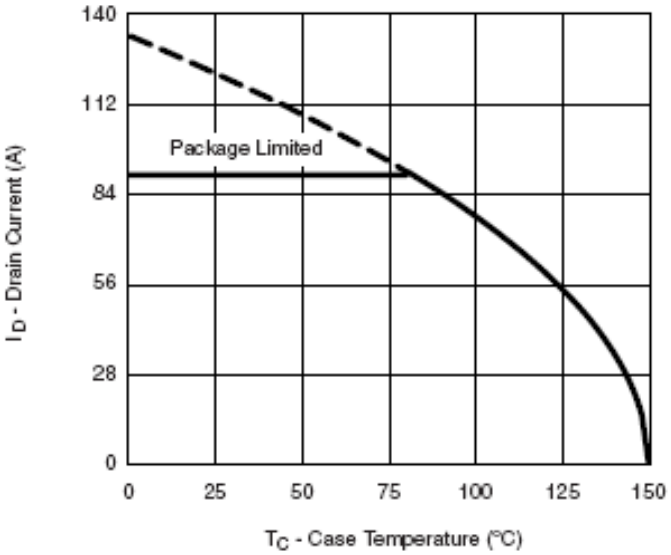
Gate Charge



Drain Source Breakdown vs. Junction Temperature

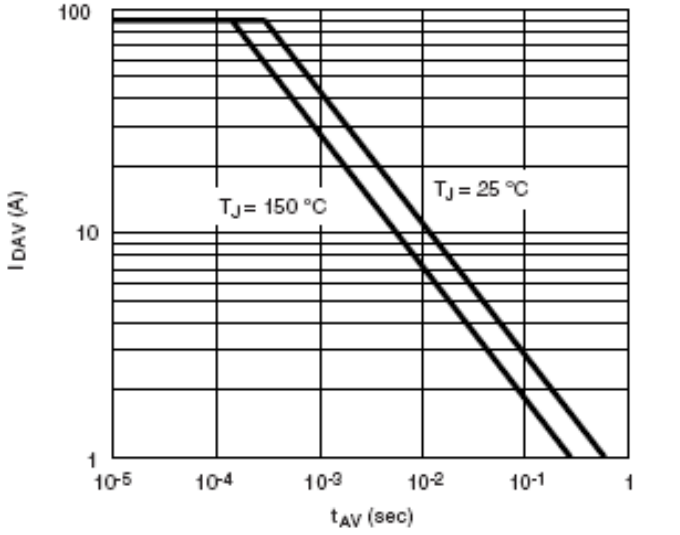


Source-Drain Diode Forward Voltage

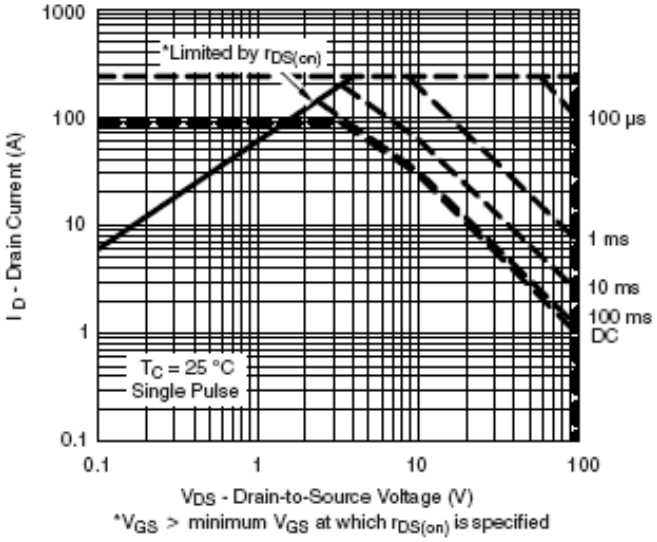


Maximum Drain Current vs. Case Temperature

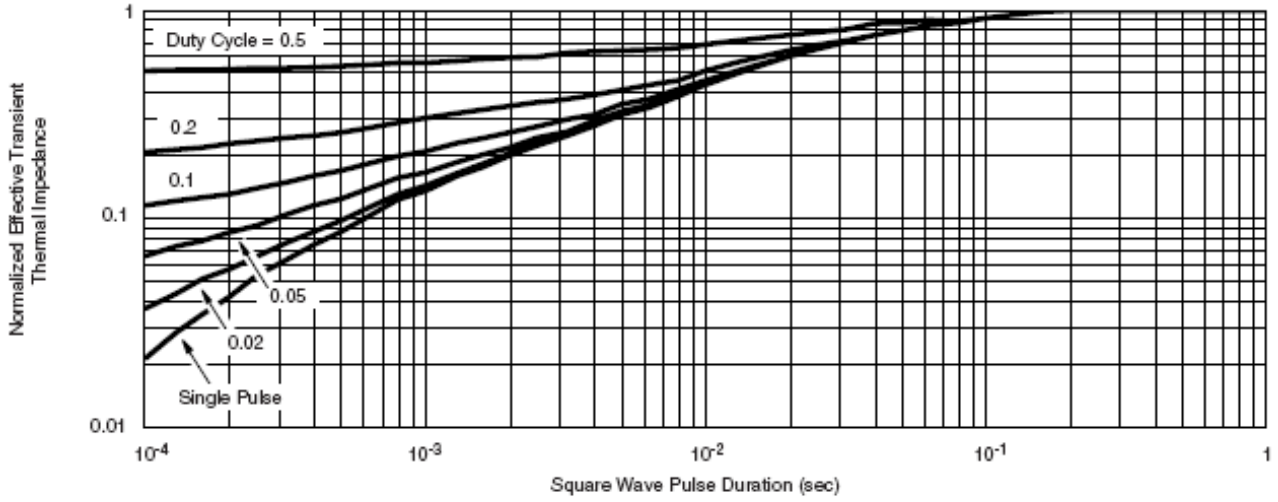
TYPICAL CHARACTERISTICS



Single Pulse Avalanche Current Capability vs. Time

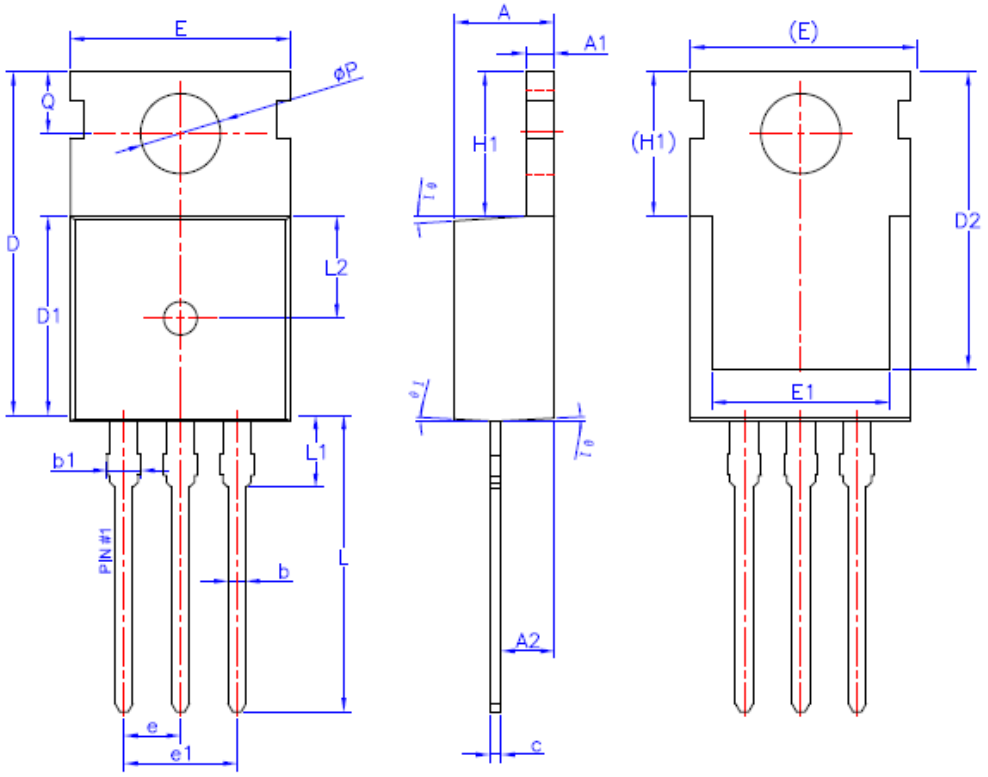


Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Case

TO-220-3L PACKAGE OUTLINE



SYMBOL	MIN	NOM	MAX
A	4.40	4.50	4.60
A1	1.27	1.30	1.33
A2	2.30	2.40	2.50
b	0.70	–	0.90
b1	1.42	–	1.57
c	0.45	0.50	0.60
D	15.30	15.70	16.10
D1	9.10	9.20	9.30
D2	13.10	–	13.70
E	9.70	9.90	10.20
E1	7.80	8.00	8.20
e	2.54BSC		
e1	5.08BSC		
H1	6.30	6.50	6.70
L	12.78	13.08	13.38
L1	–	–	3.50
L2	4.60REF		
ØP	3.55	3.60	3.65
Q	2.73	–	2.87
θ1	1°	3°	5°

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