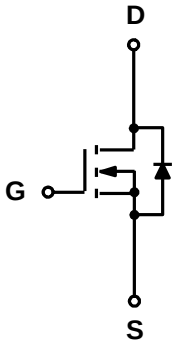
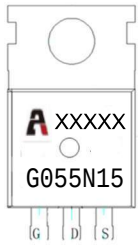
Features

- 150V,155A
  $R_{DS(ON)}$ <5.5mΩ @V_{GS}=10V TYP:4.8mΩ
  $R_{DS(ON)}$ <7.0mΩ @V_{GS}=6V TYP:5.8mΩ
- Surface-mounted package
- Super Trench
- Low Thermal Resistance





Marking and pin assignment

Applications

- Motor drivers
- DC/DC Converter

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
G055N15	APG055N15	TO-220	-	-	1000

ABSOLUTE MAXIMUM RATINGS (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Tc=25℃)(1,3)	I_D	155	A
Continuous Drain Current (Tc=100℃) (1,3)	I_D	98	A
Pulsed Drain Current(1)	I_{DM}	380	A
Single Pulsed Avalanche Energy (Tc=25℃,L=1.0mH) (1)	E_{AS}	1250	mJ
Drain Power Dissipation	P_D	312	W
Thermal Resistance from Junction to Case(2)	$R_{\theta JC}$	0.4	℃/W
Thermal Resistance- Junction to Ambient(2)	$R_{\theta JA}$	42	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

Notes:

1.Pulse width ≤ 300μs, duty cycle ≤ 2 %

2.Surface Mounted on 1 in2 pad area, t ≤ 10 sec

3.Limited by bonding wire

MOSFET ELECTRICAL CHARACTERISTICS(T_J=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	150	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =120V, V_{GS} = 0V	-	-	1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V	-	-	±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2	-	4	V
Drain-source on-resistance[a]	$R_{DS(on)}$	V_{GS} =10V, I_D =30A		4.8	5.5	mΩ
		V_{GS} =6V, I_D =20A	-	5.8	7.0	mΩ
Dynamic characteristics[b]						
Input Capacitance	C_{iss}	V_{DS} =75V, V_{GS} =0V, f =1.0MHz	-	8218	-	pF
Output Capacitance	C_{oss}		-	572	-	
Reverse Transfer Capacitance	C_{rss}		-	23	-	
Switching characteristics[b]						
Turn-on delay time	$t_{d(on)}$	V_{DD}=75V, I_D=30A, R_G=3.9Ω, V_G=10V, R_L=2.4Ω	-	17	-	nS
Turn-on rise time	t_r		-	55	-	
Turn-off delay time	$t_{d(off)}$		-	57	-	
Turn-off fall time	t_f		-	57	-	
Total Gate Charge	Qg	V_{DS}=75V, I_D=30A, V_{GS}=10V	-	458	-	nC
Gate-Source Charge	Qgs		-	48	-	
Gate-Drain Charge	Qgd		-	39	-	
Source-Drain Diode characteristics						
Diode Forward voltage[a]	V_{SD}	T_J=25℃, V_{GS} =0V, I_S=30A	-	-	1.3	V
Diode Forward current	I_S	T_C=25℃	-	-	155	A
Body Diode Reverse Recovery Time	trr	T_J=25℃，IF=30A,di/dt=100A/us		111		nS
Body Diode Reverse Recovery Charge	Qrr	T_J=25℃，IF=30A,di/dt=100A/us		381		nC

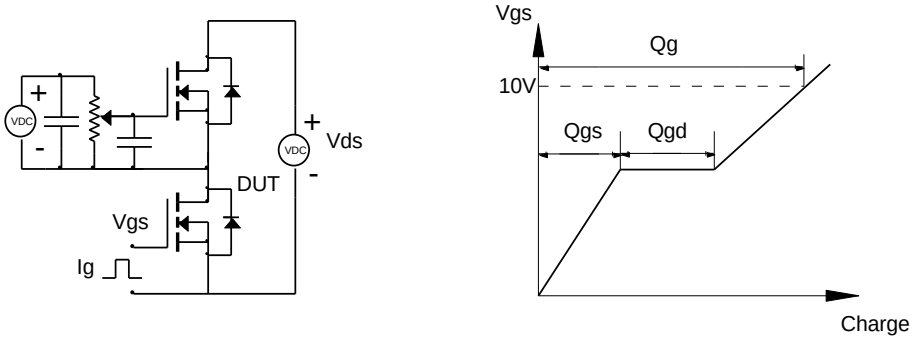
Notes:

a) Pulse width ≤ 300 μs, duty cycle ≤ 2%

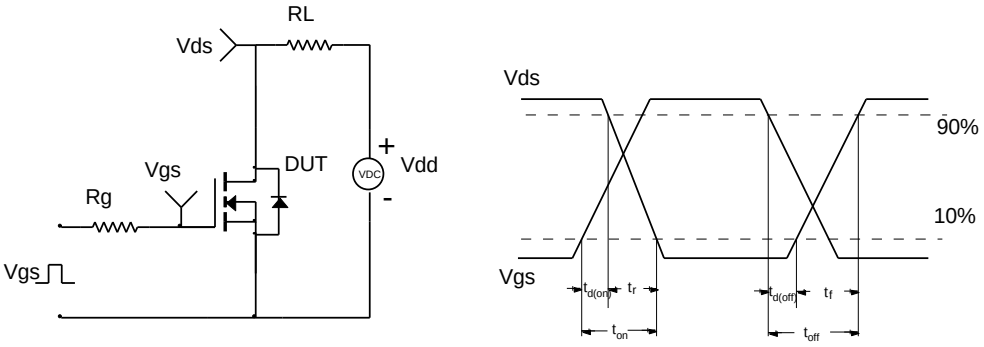
b) Guaranteed by design, not subject to production testing

Test Circuit

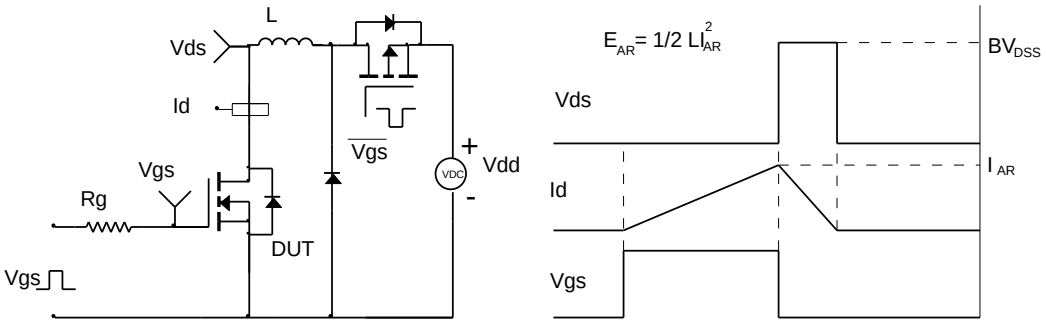
Gate Charge Test Circuit & Waveform



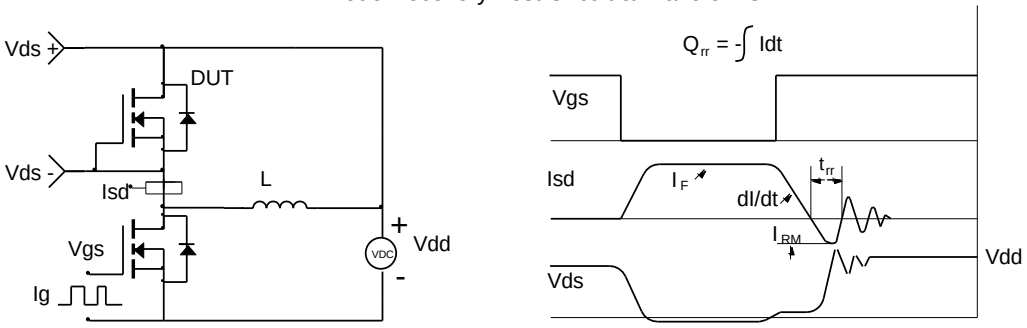
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

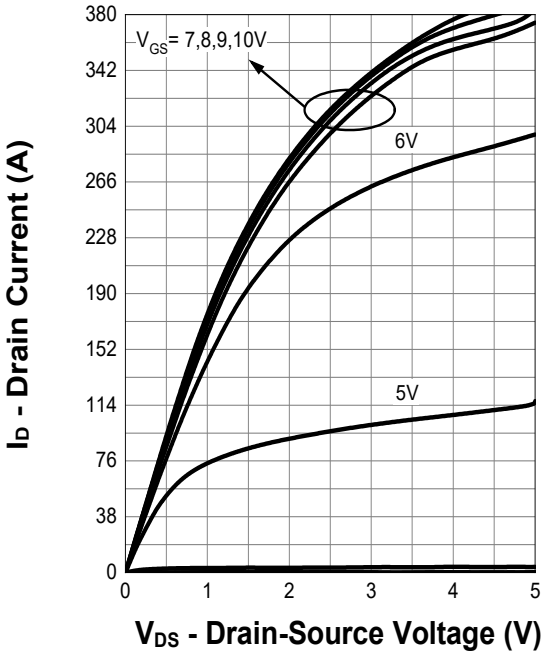


Diode Recovery Test Circuit & Waveforms

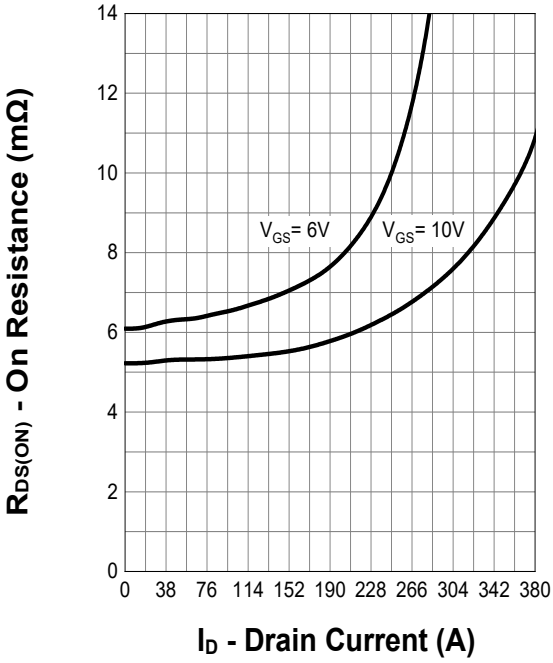


Typical Characteristics

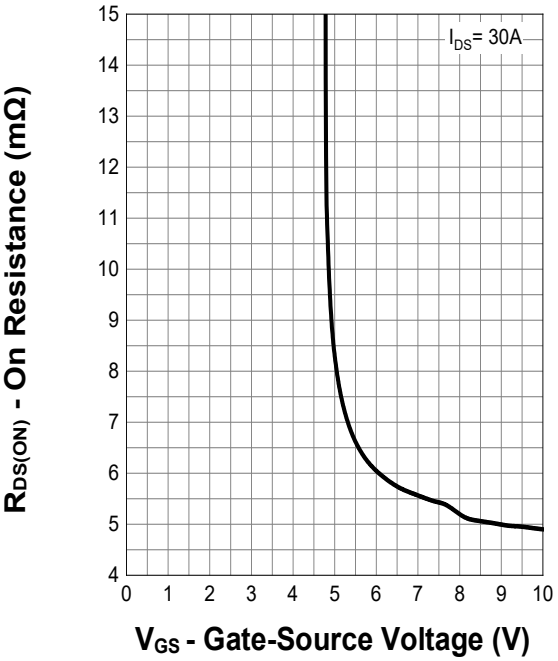
Output Characteristics



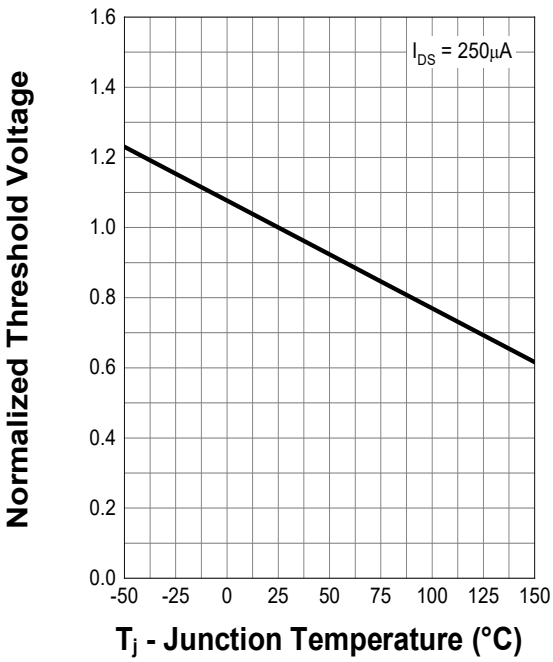
On Resistance



Transfer Characteristics

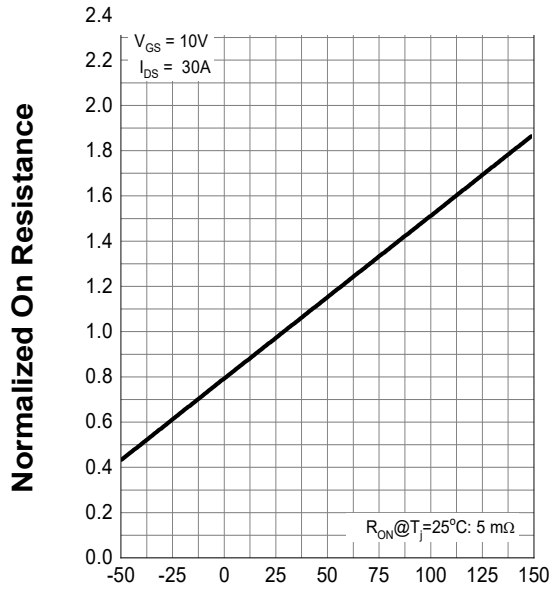


Normalized Threshold Voltage

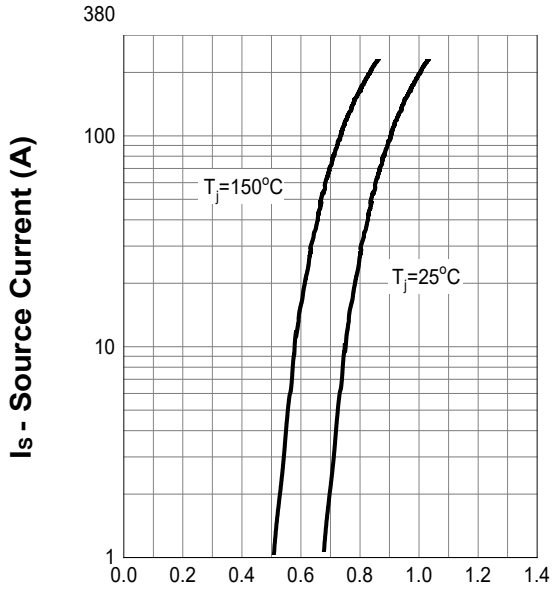


Typical Characteristics

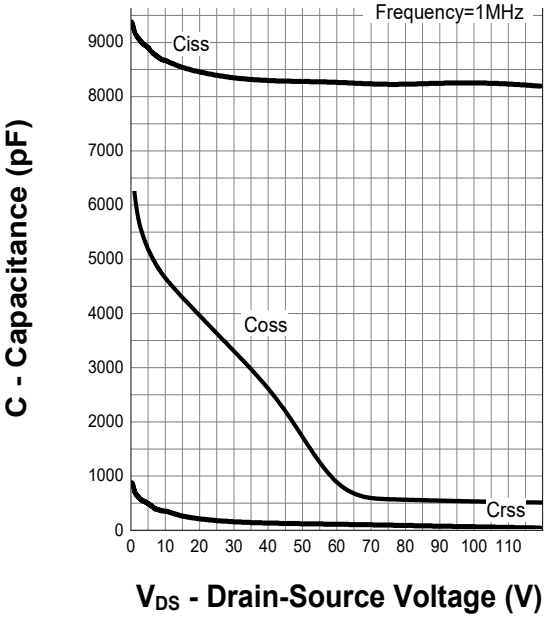
Normalized On Resistance



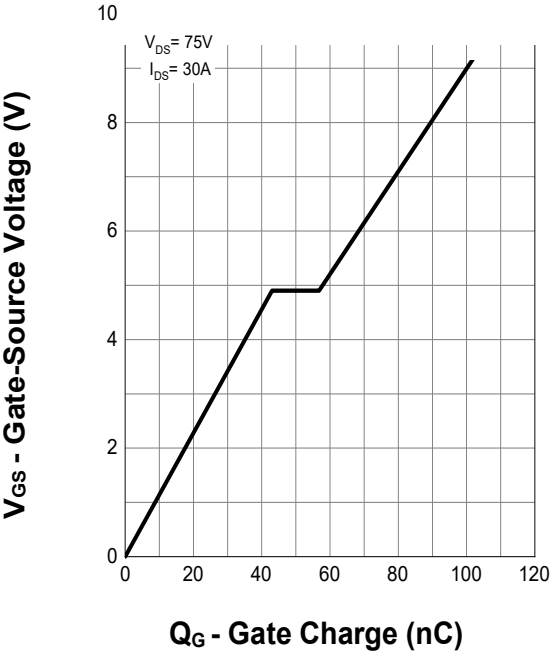
Diode Forward Current



Capacitance

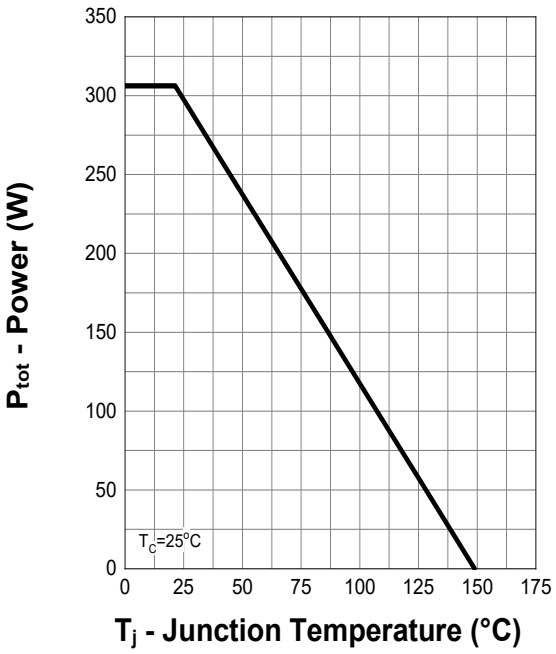


Gate Charge

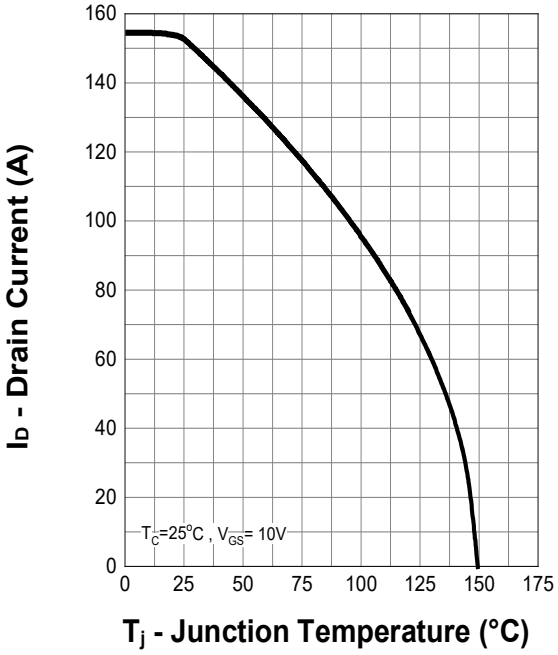


Typical Characteristics

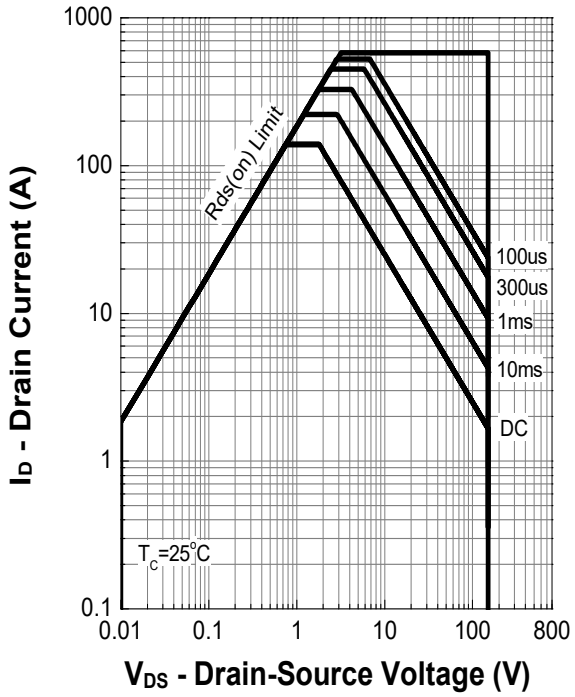
Power Capability



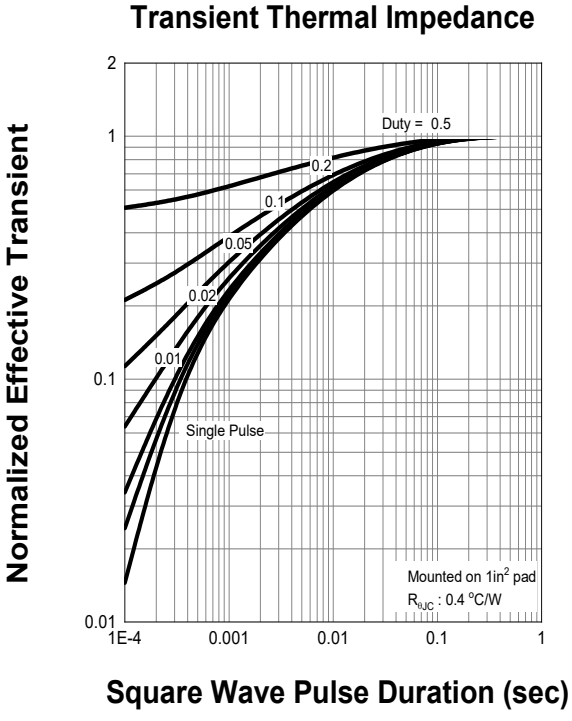
Current Capability



Safe Operating Area

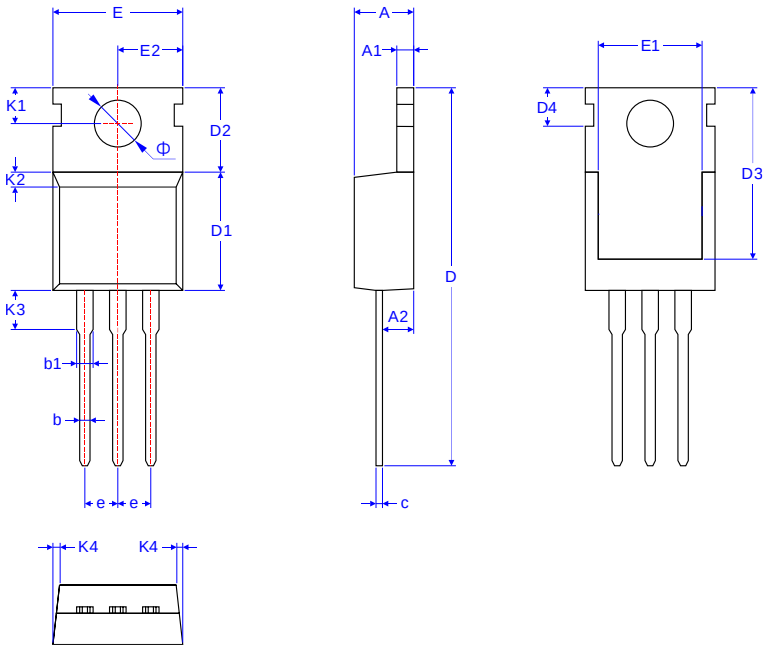


Transient Thermal Impedance



Package Dimensions

TO-220



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	MIN.	MAX.	MIN.	MAX.
A	4.35	4.65	0.1713	0.1831
A1	1.15	1.45	0.0453	0.0571
A2	2.20	2.60	0.0866	0.1024
b	0.65	0.95	0.0256	0.0374
b1	1.15	1.45	0.0453	0.0571
c	0.35	0.65	0.0138	0.0256
D	28.68	29.08	1.1291	1.1449
D1	9.00	9.40	0.3543	0.3701
D2	6.40	6.80	0.2520	0.2677
D3	13.00	13.40	0.5118	0.5276
D4	2.85	3.15	0.1122	0.1240
E	9.80	10.20	0.3858	0.4016
E1	7.80	8.20	0.3071	0.3228
E2	4.80	5.20	0.1890	0.2047
e	TYP 2.54		TYP 0.100	
K1	2.65	2.95	0.1043	0.1161
K2	0.15	0.35	0.0059	0.0138
K3	2.80	3.20	0.1102	0.1260
K4	0.15	0.35	0.0059	0.0138
Φ	3.45	3.75	0.1358	0.1476

Revision History

Revision	Release	Remark
V1.0	2023/04/24	Initial Release

Disclaimer

The information given in this document describes the independent performance of the product,but similar performance is not guaranteed under other working conditions,and cannot be guaranteed when installed with other products or equipment.To achieve the required performance of the product in actual scenarios,the customer should conduct a complete application test to assess the functionality of the product.

Allpower assumes no responsibility for equipment failures result from using products at values that exceed the ratings,operating conditions,or other parameters listed in the product specifications.

The product described in this specification is not applicable for aerospace or other applications which requires high reliability.Customers using or selling these products for use in medical,life-saving,or life-sustaining applications do so at their own risk and agree to fully indemnify.

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