

# APG028N10

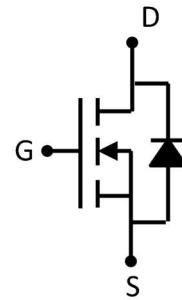
N-Channel Enhancement Mosfet

# AIIPOWER

## DATA SHEET

### Feature

- 100V,210A  
 $R_{DS(ON)} < 2.8m\Omega @ V_{GS}=10V$  (TYP:2.2m $\Omega$ )
- Split Gate Trench Technology
- Lead free product is acquired
- Excellent  $R_{DS(ON)}$  and Low Gate Charge



Schematic diSgram

### Application

- PWM applications
- Load Switch
- Power management



Marking and pin assignment

### Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
G028N10	APG028N10	TO-220C	-	-	1000

### ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current ( $T_c=25^\circ\text{C}$ )	$I_D$	210	A
Continuous Drain Current ( $T_c=100^\circ\text{C}$ )	$I_D$	132	A
Pulsed Drain Current <sup>(1)</sup>	$I_{DM}$	840	A
Single Pulsed Avalanche Energy <sup>(2)</sup>	$E_{AS}$	418	mJ
Power Dissipation	$P_D$	272	W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.46	$^\circ\text{C/W}$
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	55	$^\circ\text{C/W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$

**MOSFET ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise noted)**

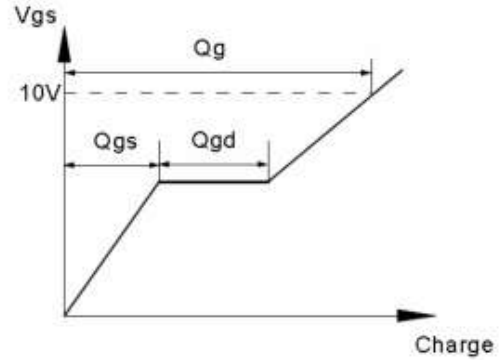
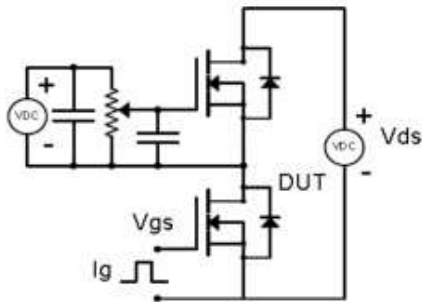
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	100	-	-	V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =100V, V <sub>GS</sub> = 0V	-	-	1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> = 0V	-	-	±100	nA
Gate threshold voltage <sup>(3)</sup>	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-resistance <sup>(3)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =20A	-	2.2	2.8	mΩ
Gate Resistance	R <sub>g</sub>	V <sub>DS</sub> =V <sub>GS</sub> =0V, f =1MHz	-	2.7	-	Ω
<b>Dynamic characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V, f =1MHz	-	8390	-	pF
Output Capacitance	C <sub>oss</sub>		-	2780	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	127	-	
<b>Switching characteristics</b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> =50V, I <sub>D</sub> =50A, V <sub>GS</sub> =10V, R <sub>G</sub> =3Ω	-	33	-	ns
Turn-on rise time	t <sub>r</sub>		-	28	-	
Turn-off delay time	t <sub>d(off)</sub>		-	102	-	
Turn-off fall time	t <sub>f</sub>		-	36	-	
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =50V, I <sub>D</sub> =50A, V <sub>GS</sub> =10V	-	112	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	31	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	26	-	
Reverse Recovery Chrage	Q <sub>rr</sub>	I <sub>F</sub> =20A, di/dt=100A/us		178		nC
Reverse Recovery Time	T <sub>rr</sub>	I <sub>F</sub> =20A, di/dt=100A/us		89		ns
<b>Source-Drain Diode characteristics</b>						
Diode Forward voltage <sup>(3)</sup>	V <sub>DS</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =40A	-	0.8	1.2	V
Diode Forward current <sup>(4)</sup>	I <sub>S</sub>		-	-	210	A

**Notes:**

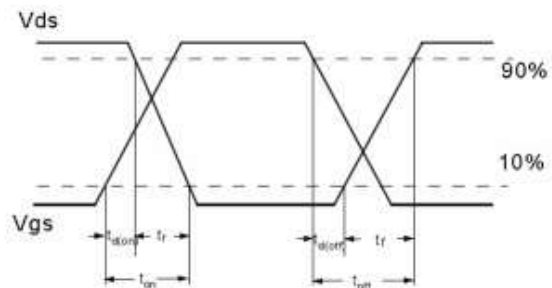
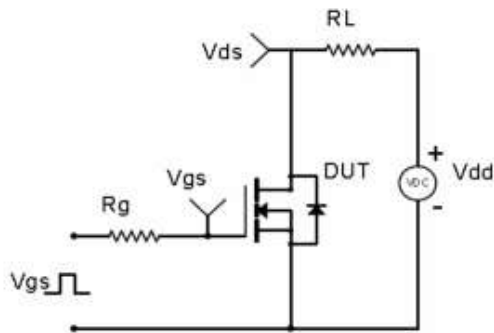
1. Repetitive Rating: pulse width limited by maximum junction temperature
2. EAS Condition: T<sub>J</sub>=25°C, V<sub>DD</sub>=50V, R<sub>G</sub>=25 Ω, L=0.5Mh
3. Pulse Test: pulse width≤300μs, duty cycle≤2%
4. Surface Mounted on FR4 Board, t≤10 sec

**Test Circuit & Waveform**

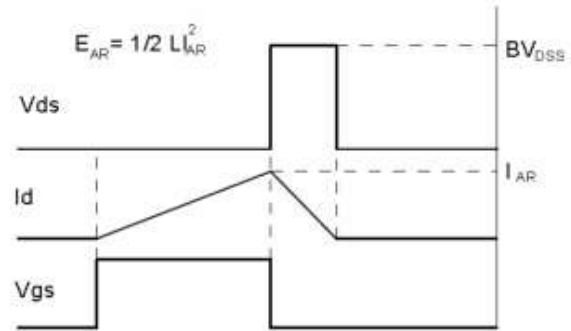
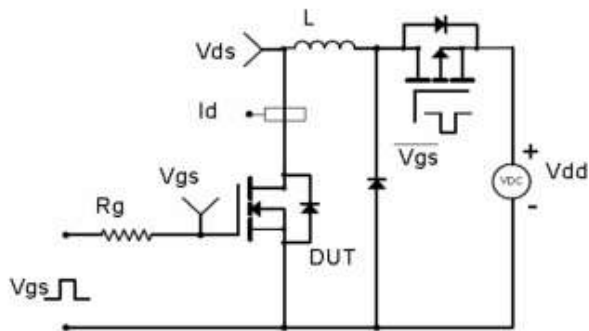
Gate Charge Test Circuit & Waveform



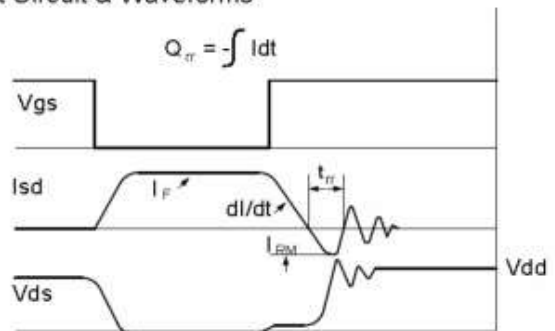
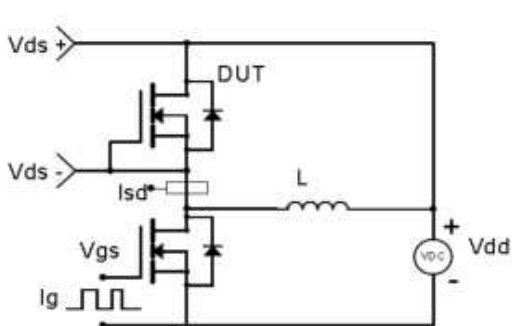
Resistive Switching Test Circuit & Waveforms



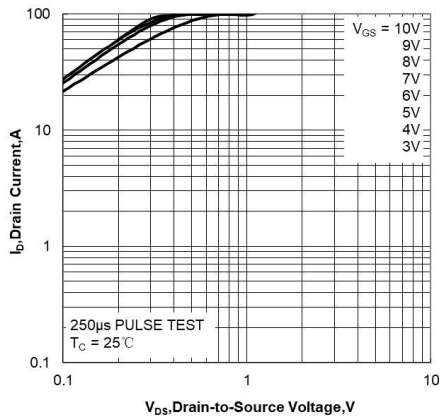
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



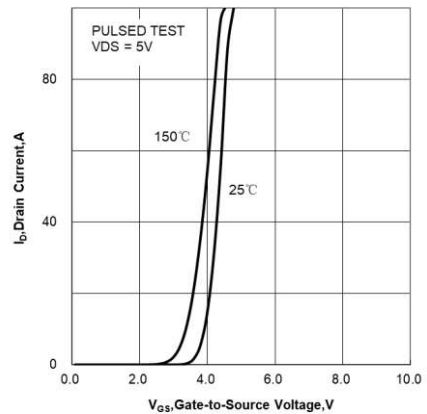
Diode Recovery Test Circuit & Waveforms



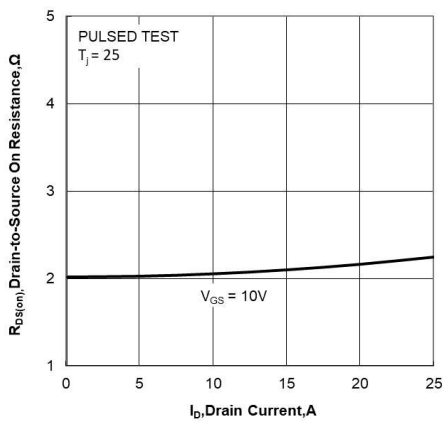
**Typical Performance Characteristics**



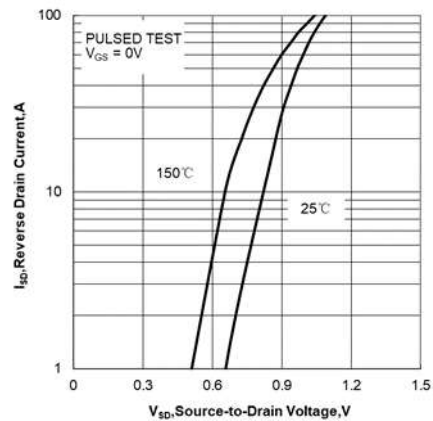
**Figure 1. Output Characteristics**



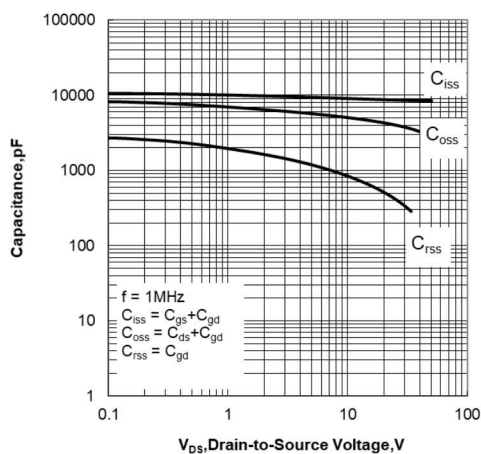
**Figure 2. Transfer Characteristics**



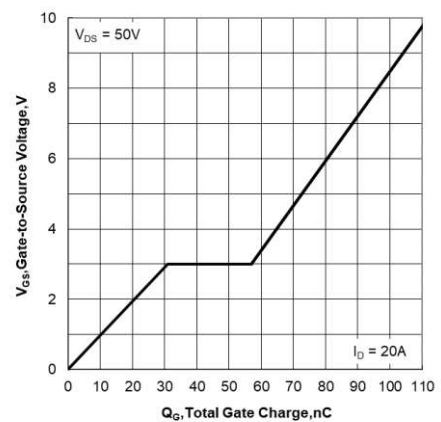
**Figure 3. Drain-to-Source On Resistance vs Drain Current**



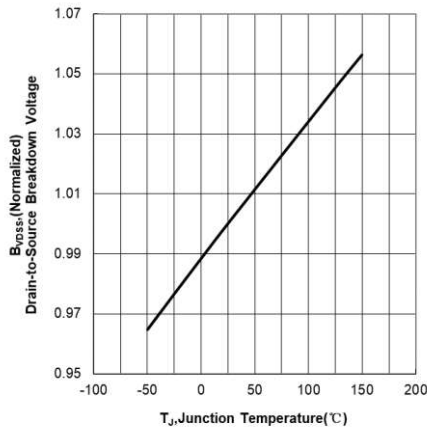
**Figure 4. Body Diode Forward Voltage vs Source Current and Temperature**



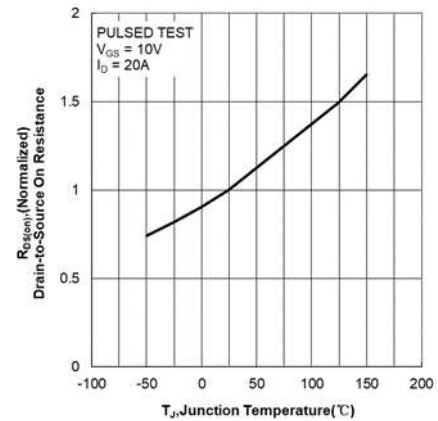
**Figure 5. Capacitance Characteristics**



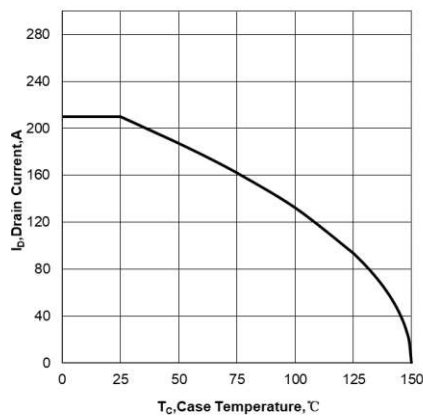
**Figure 6. Gate Charge Characteristics**



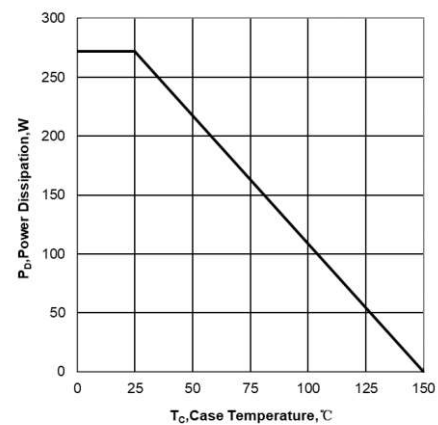
**Figure 7. Normalized Breakdown Voltage vs Junction Temperature**



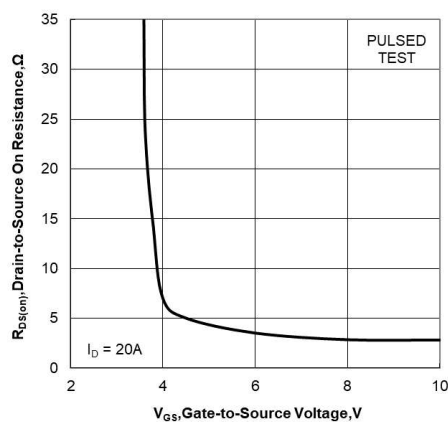
**Figure 8. Normalized On Resistance vs Junction Temperature**



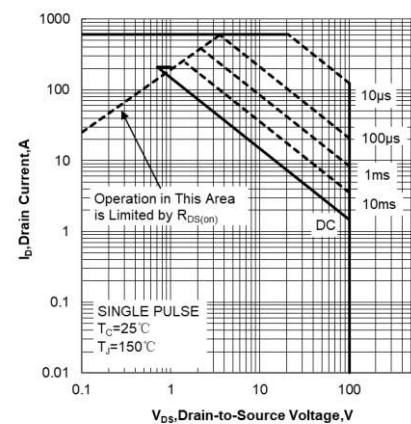
**Figure 9. Maximum Continuous Drain Current vs Case Temperature**



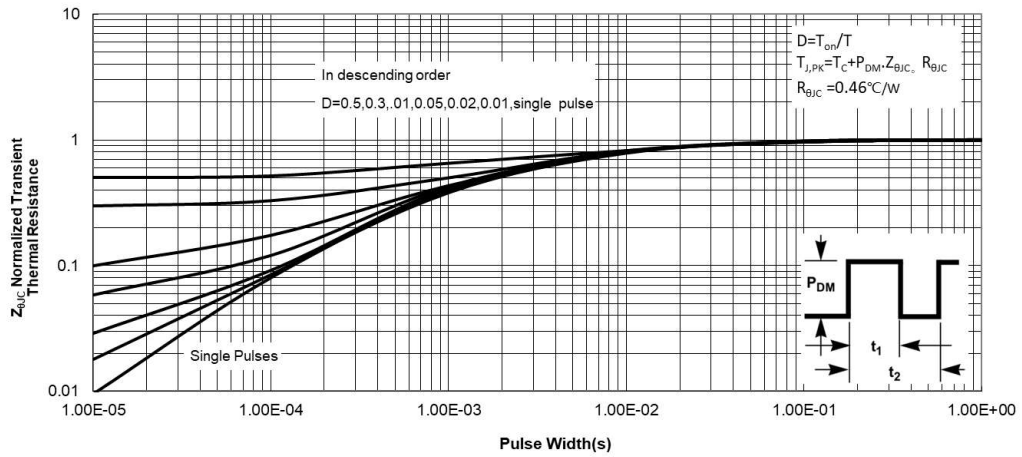
**Figure 10. Maximum Power Dissipation vs Case Temperature**



**Figure 11. Drain-to-Source On Resistance vs Gate Voltage and Drain Current**



**Figure 12. Maximum Safe Operating Area**

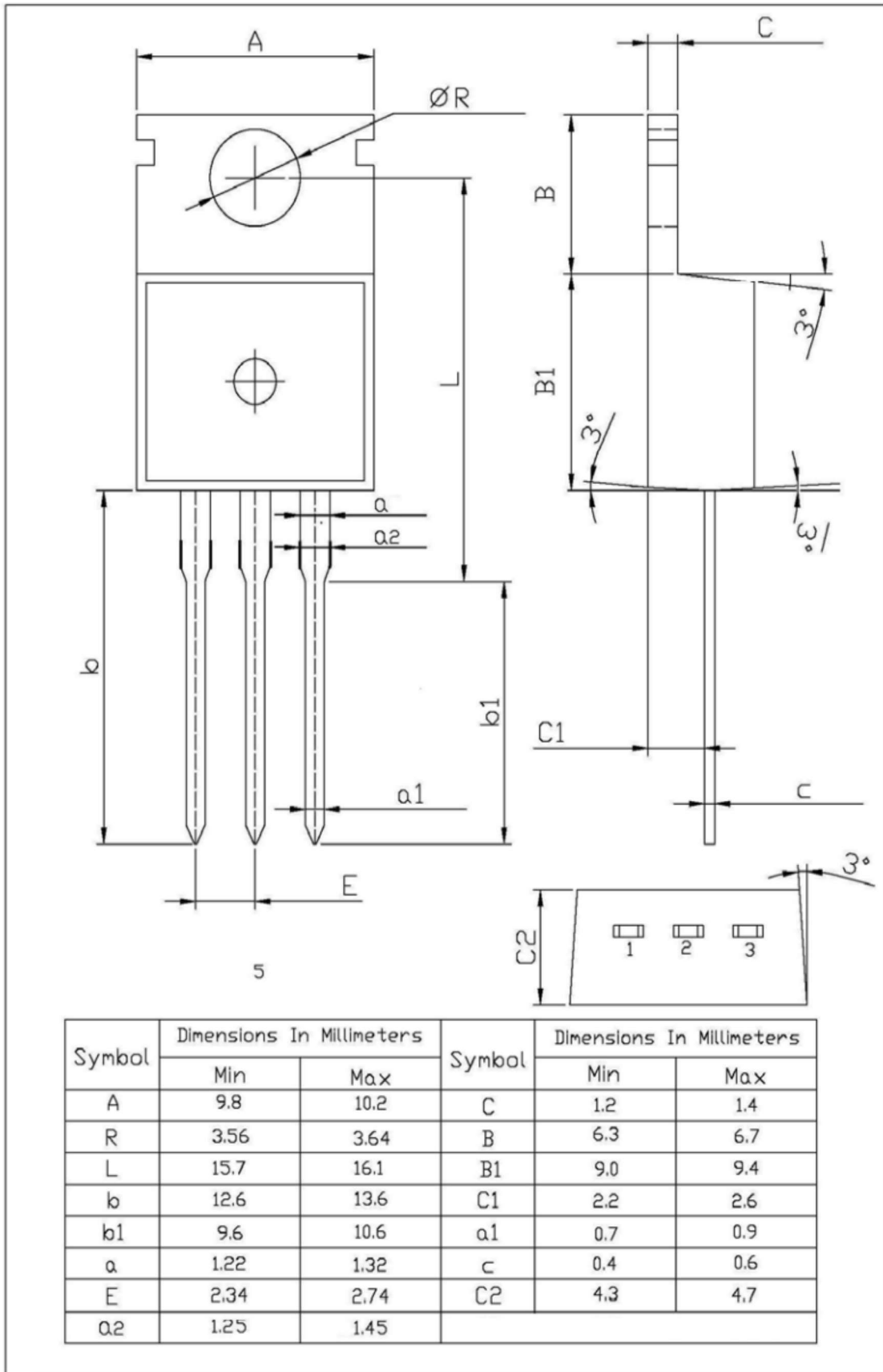


**Figure 13. Maximum Effective Transient Thermal Impedance, Junction-to-Case**

# APG028N10

N-Channel Enhancement Mosfet

### TO220C Package Information



## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [MOSFET](#) category:*

*Click to view products by [Quan Li](#) manufacturer:*

Other Similar products are found below :

[IRFD120](#) [JANTX2N5237](#) [BUK455-60A/B](#) [MIC4420CM-TR](#) [VN1206L](#) [NDP4060](#) [SI4482DY](#) [IPS70R2K0CEAKMA1](#) [SQD23N06-31L-GE3](#)  
[TK16J60W,S1VQ\(O](#) [2SK2614\(TE16L1,Q\)](#) [DMN1017UCP3-7](#) [DMN1053UCP4-7](#) [SQJ469EP-T1-GE3](#) [NTE2384](#) [DMC2700UDMQ-7](#)  
[DMN2080UCB4-7](#) [DMN61D9UWQ-13](#) [US6M2GTR](#) [DMN31D5UDJ-7](#) [DMP22D4UFO-7B](#) [DMN1006UCA6-7](#) [DMN16M9UCA6-7](#)  
[STF5N65M6](#) [IRF40H233XTMA1](#) [STU5N65M6](#) [DMN6022SSD-13](#) [DMN13M9UCA6-7](#) [DMTH10H4M6SPS-13](#) [DMN2990UFB-7B](#)  
[IPB80P04P405ATMA2](#) [2N7002W-G](#) [MCAC30N06Y-TP](#) [MCQ7328-TP](#) [NTMC083NP10M5L](#) [BXP7N65D](#) [BXP4N65F](#) [AOL1454G](#)  
[WMJ80N60C4](#) [BXP2N20L](#) [BXP2N65D](#) [BXT1150N10J](#) [BXT1700P06M](#) [TSM60NB380CP](#) [ROG](#) [RQ7L055BGTGR](#) [DMNH15H110SK3-13](#)  
[SLF10N65ABV2](#) [BSO203SP](#) [BSO211P](#) [IPA60R230P6](#)