N-Ch 30V Fast Switching MOSFET

V_{DS}=30V, I_D=1.8A, $RDS_{(ON)}$=70mΩ

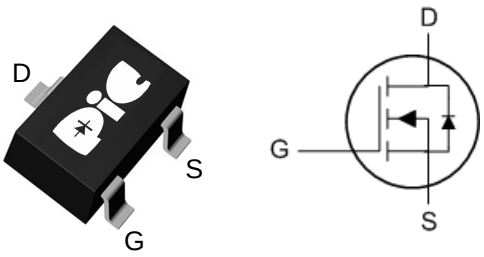
➢ General Description

This PAN3036R N-Channel enhancement mode power field effect transistor is the high density trench technology and this advanced technology can provide excellent Rds(On) performance and efficiency for power switching and load switching application., this device also comply with the RoHS and Green Product requirement with full function reliability approved.

➢ Feature

- ●Super high density cell design for extremely low RDS (ON)
- ●Exceptional on-resistance and maximum DC current capability
- ●SOT-323 package design

➢ SOT-323



➢ Application

- ●Portable Equipment
- ●Battery Powered System
- ●Net Working System

➢ Absolute Maximum Ratings

Parameter		Symbol	Maximum Ratings	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current	T_A=25℃	I_D	1.8	A
	T_A=70℃		1.4	
Pulsed Drain Current		I_{DM}	5.4	
Maximum Power Dissipation	T_A=25℃	P_D	0.34	W
	T_A=70℃		0.22	
Operating Junction and Storage Temperature Range		TJ, Tstg	-55 to 150	℃
Thermal Resistance-Junction to Ambient*		$R_{\theta JA}$	367	℃/W

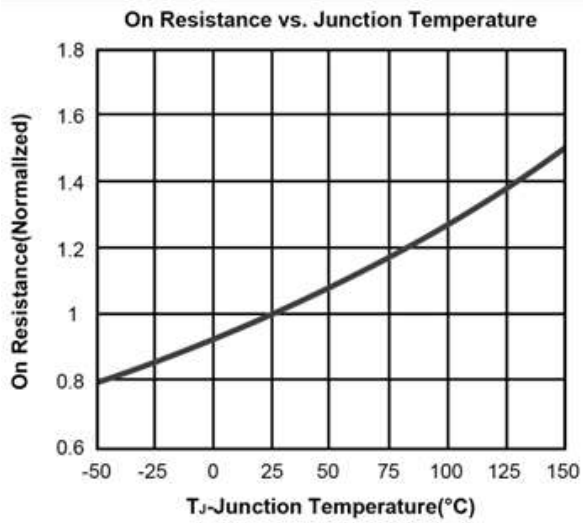
*The device mounted on 1in2 FR4 board with 2 oz copper

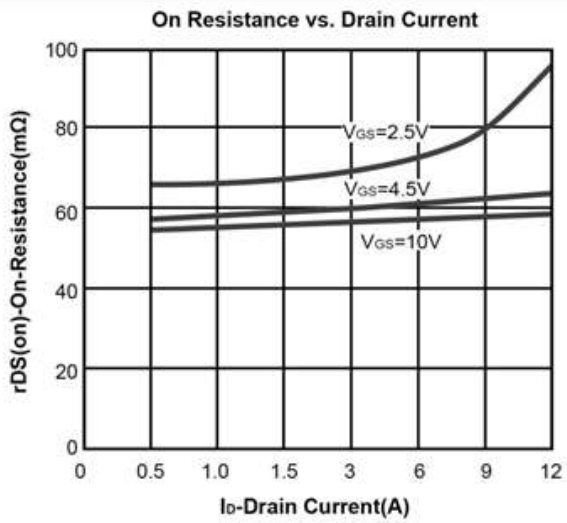
➢ Electrical Characteristics (T_A=25°C Unless otherwise noted)

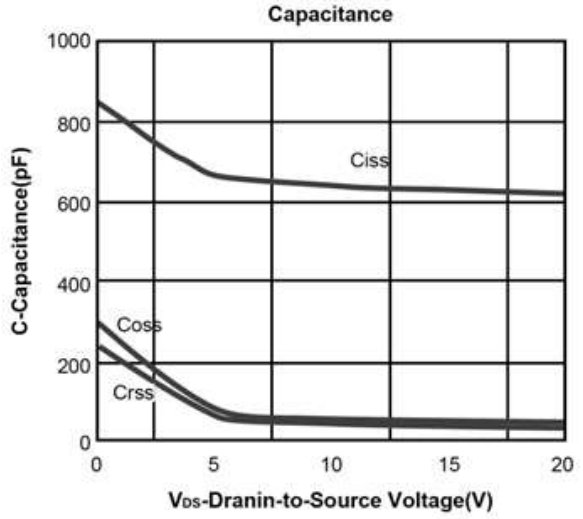
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC PARAMETERS						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	30			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	0.7		1.4	
I_{GSS}	Gate-Body Leakage Current	V_{DS}=0V, V_{GS}=±12V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V			1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance[a]	V_{GS}=10V, I_D= 1.7A		58	70	mΩ
		V_{GS}=4.5V, I_D= 1.5A		61	75	
		V_{GS}=2.5V, I_D= 1A		69	85	
V_{SD}	Diode Forward Voltage	I_S=1.25A, V_{GS}=0V		0.8	1.2	V
DYNAMIC PARAMETERS						
Qg	Total Gate Charge	V_{DS}=15V, V_{GS}=10V, I_D=1.7A		17		nC
Qgs	Gate-Source Charge			3.6		
Qgd	Gate-Drain Charge			2.3		
Ciss	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz		627		pF
Coss	Output Capacitance			48		
Crss	Reverse Transfer Capacitance			40		
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=15V, V_{GS}=10V, I_D=1.7A, R_G=6Ω		7.4		ns
t_r	Rise Time			31.5		
$t_{d(off)}$	Turn-Off Delay Time			25.1		
t_f	Fall Time			10.7		

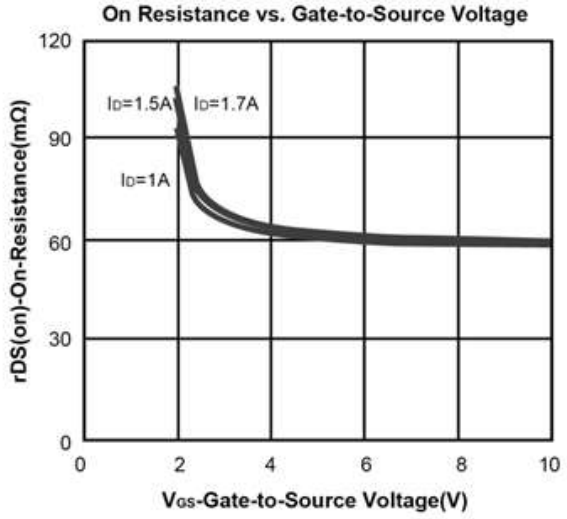
Notes: a. Pulse test; pulse width ≦ 380us, duty cycle ≦ 2%

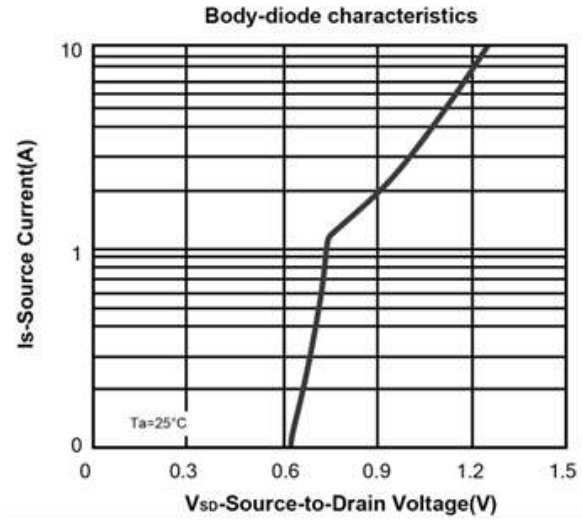
➢ Typical Characteristics

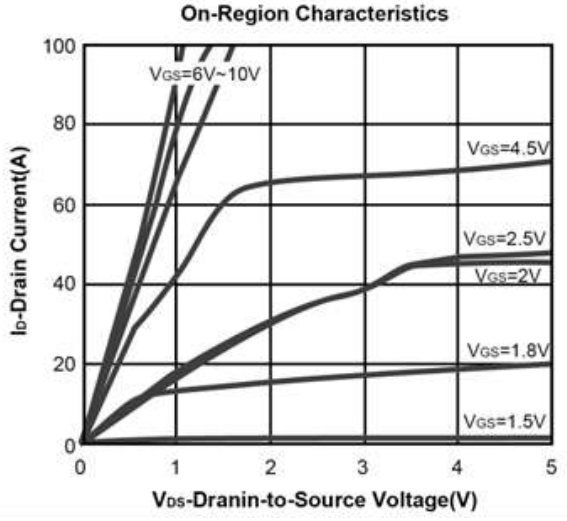




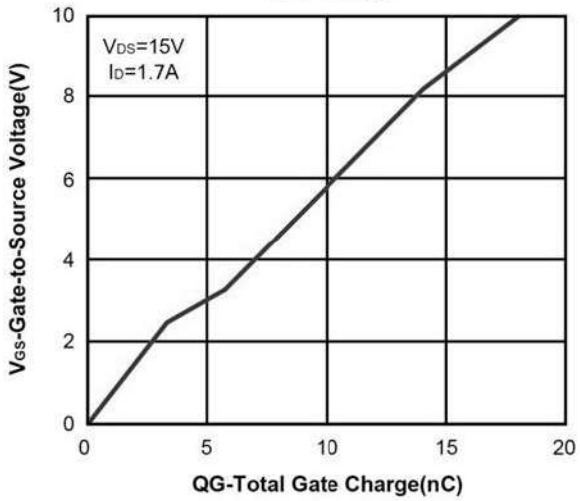




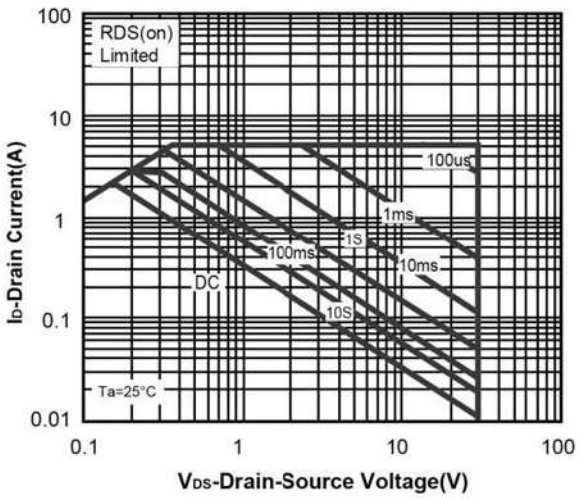




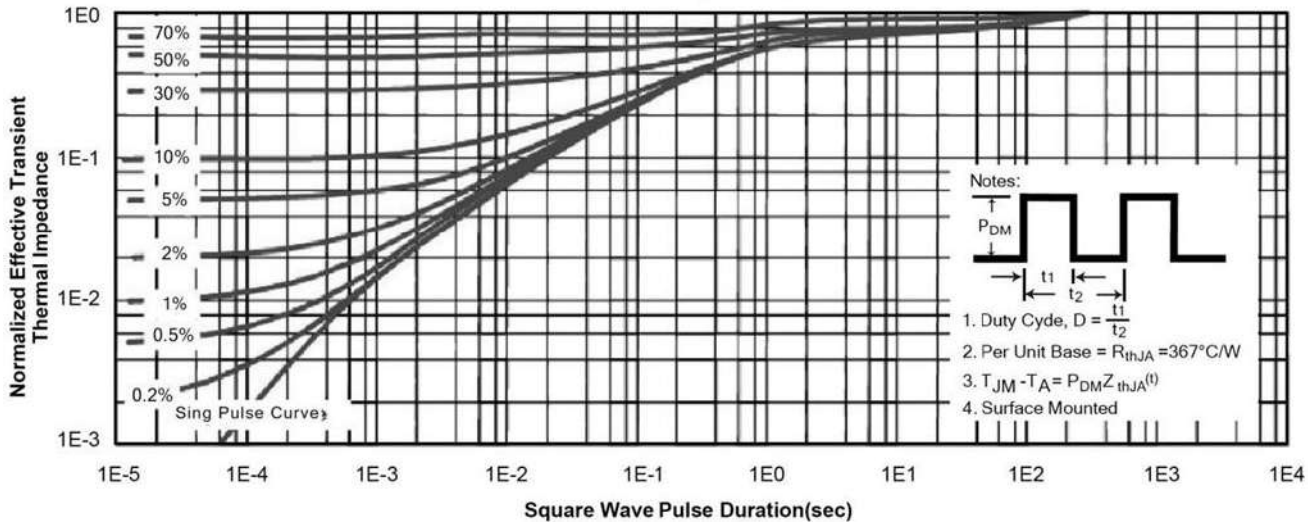
Gate Charge



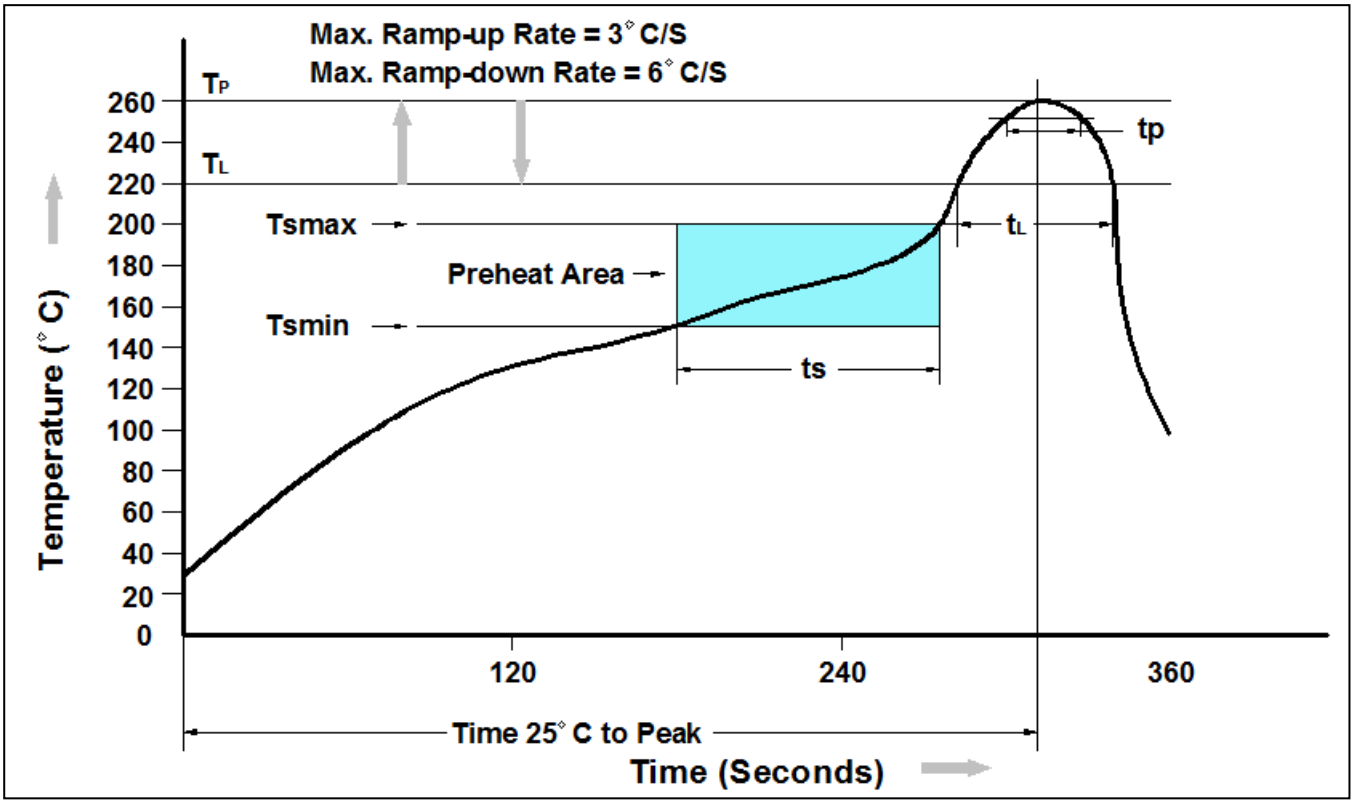
Maximum Forward Biased Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Ambient



➢ Recommand IR Reflow Soldering Thermal Profile

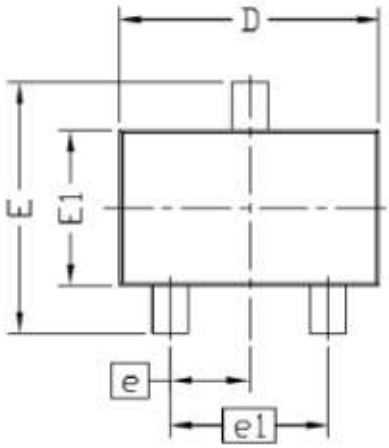


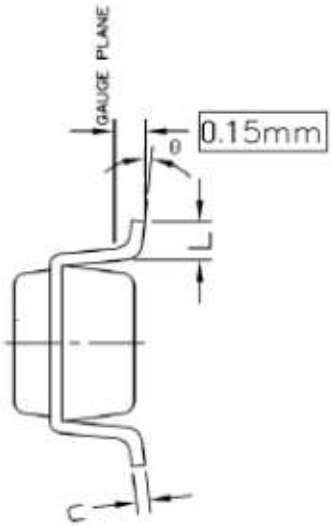
Profile Feature	Pb-Free Assembly Profile
Temperature Min. (Tsmin)	150℃
Temperature Max. (Tsmax)	200℃
Time (ts) from (Tsmin to Tsmax)	60-120 seconds
Average Ramp-up Rate (tL to tP)	3℃/second max.
Liquidous Temperature (TL)	217℃
Time (tL) Maintained Above (TL)	60 – 150 seconds
Peak Temperature	260℃ +0℃ / -5℃
Time (tP) within 5℃ of actual Peak Temperature	30 seconds
Ramp-down Rate (TP to TL)	6℃/second max
Time 25℃ to Peak Temperature	8 minutes max.

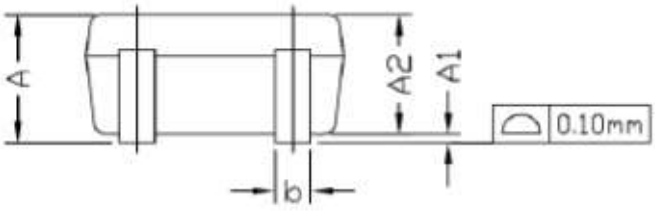
➢ Ordering Information

Part Number	Description	Quantity
PAN3036R	SOT-323 Reel	3000 pcs

➢ Package Information (SOT-323)







DIM	MILLIMETERS (mm)	
	MIN	MAX
A	-	1.10
A1	0.00	0.10
A2	0.7	1.00
b	0.15	0.30
c	0.08	0.22
D	1.85	2.15
E	1.80	2.40
e	0.65 BSC	
e1	1.30 BSC	
E1	1.1	1.4
L	0.10	-
θ	0°	8°

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