

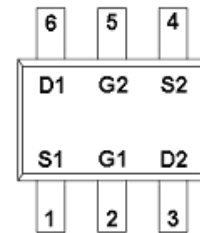
➤ General Description

This PAN3992EH Dual 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

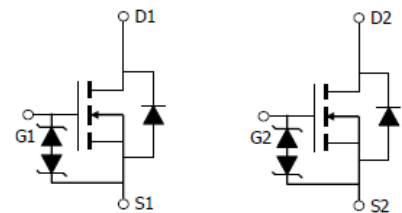
- Low Offset (Error) Voltage
- Low-Voltage Operation
- High-Speed Circuits
- Low Battery Voltage Operation
- ESD Protected
- SOT-363 package design

➤ SOT-363



➤ Application

- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- Battery Operated Systems
- Load/Power Switching Smart Phones, Pagers
- PA Switch
- Level Switch



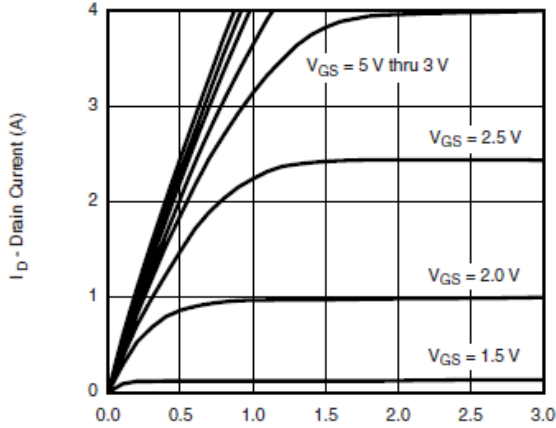
➤ Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	30	V
Gate –Source Voltage	V _{GSS}	±12	V
Continuous Drain Current(T _J =150°C)	I _D	T _A =25°C	1.8
		T _A =70°C	1.0
Pulsed Drain Current	I _{DM}	6	A
Continuous Source Current(Diode Conduction)	I _S	1	A
Power Dissipation	P _D	T _A =25°C	0.3
		T _A =70°C	0.2
Operating Junction Temperature	T _J	-55/150	°C
Storage Temperature Range	T _{STG}	-55/150	°C

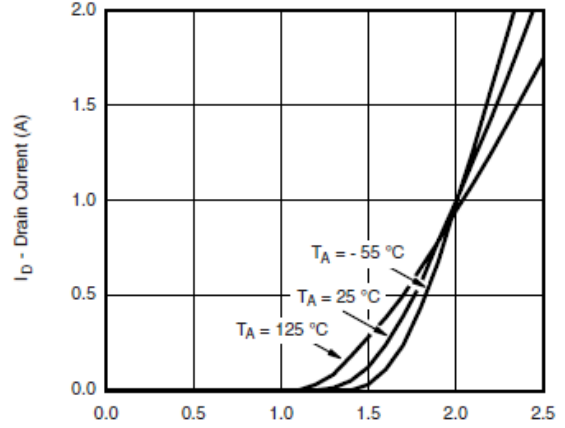
➤ Electrical Characteristics (T_A=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.85	1.1	1.35	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±10	mA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V			1	μA
		V _{DS} =24V, V _{GS} =0V T _J =85°C			5	
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 5V, V _{GS} =4.5V	1.8			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =1.8A		400	450	mΩ
		V _{GS} =2.5V, I _D =1.5A		525	600	
Forward Transconductance	g _{FS}	V _{DS} =10V, I _D =1.0A		1		S
Diode Forward Voltage	V _{SD}	I _S =1.0A, V _{GS} =0V		0.65	1.2	V
Dynamic						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V f=1MHz		85		pF
Output Capacitance	C _{oss}			25		
Reverse Transfer Capacitance	C _{rss}			15		
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =4.5V I _D ≅ 1.2A		1.4	1.8	nC
Gate-Source Charge	Q _{gs}			0.3		
Gate-Drain Charge	Q _{gd}			0.6		
Turn-On Time	t _{d(on)}	V _{DD} =15V, R _L =20Ω I _D ≅ 1.2A, V _{GEN} =4.5V R _G =1Ω		15	25	ns
	t _r			25	45	
Turn-Off Time	t _{d(off)}			15	25	
	t _f			10	20	

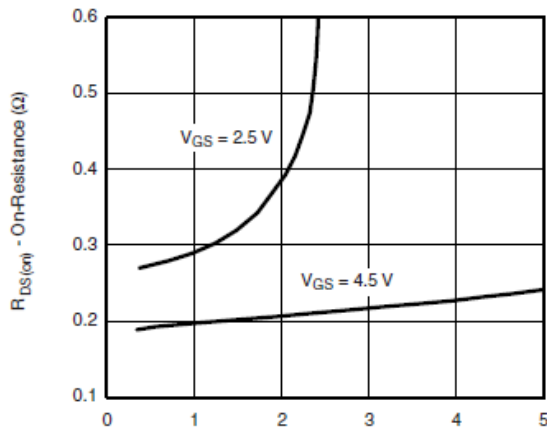
➤ Typical Characteristics



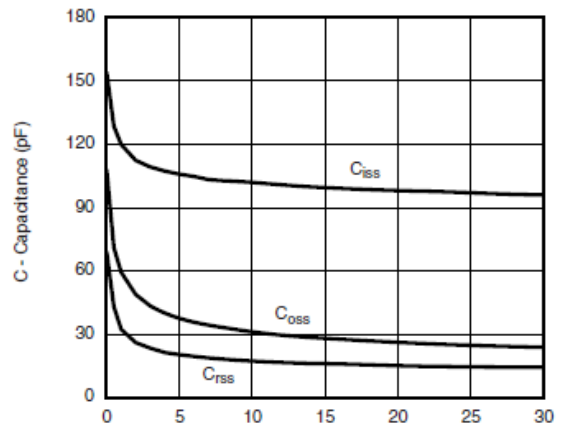
Output Characteristics



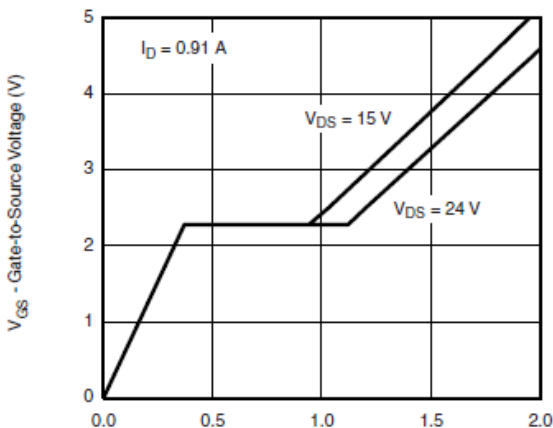
Transfer Characteristics Curves vs. Temperature



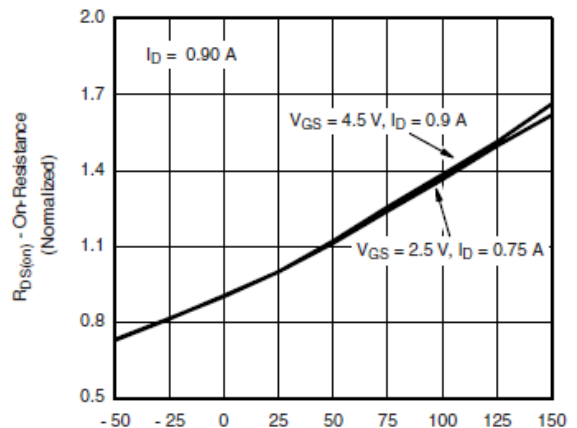
On-Resistance vs. Drain Current



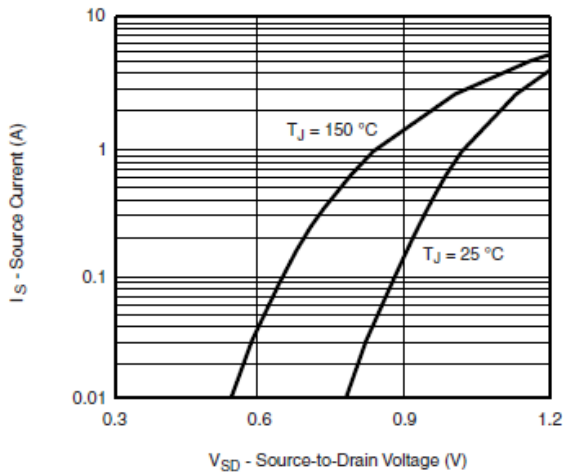
Capacitance



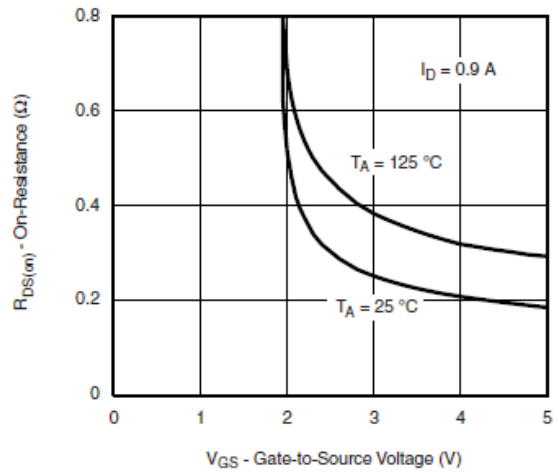
Gate Charge



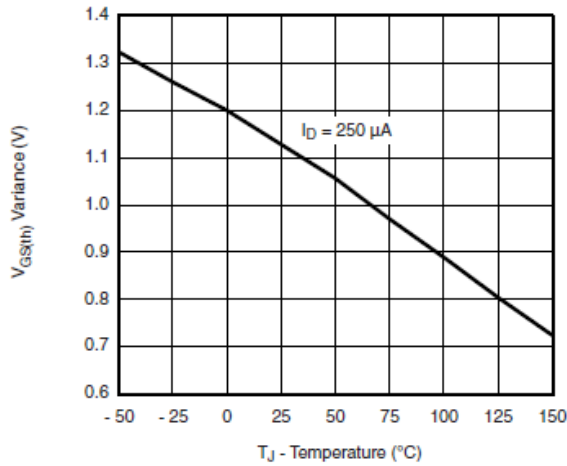
On-Resistance vs. Junction Temperature



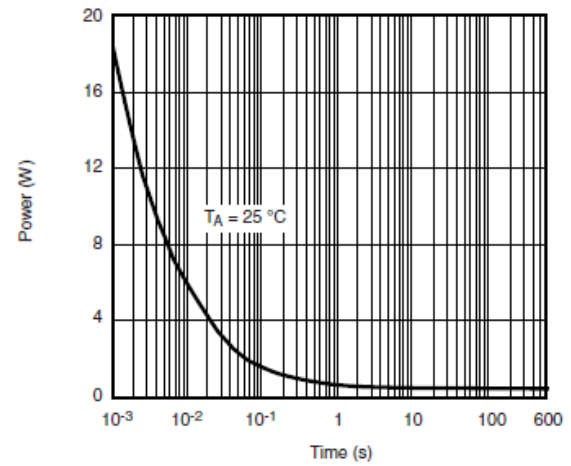
Forward Diode Voltage vs. Temperature



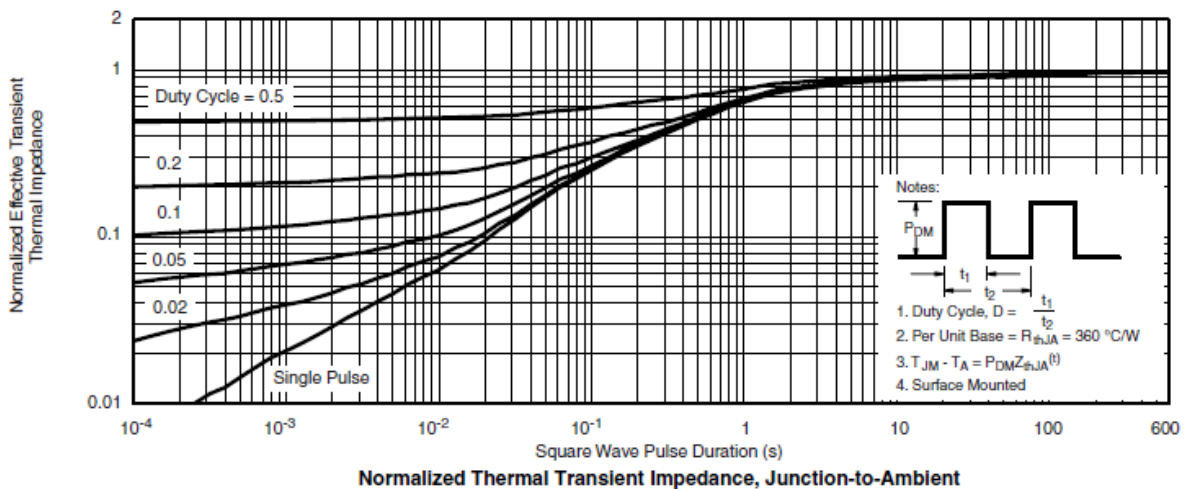
RDS(on) vs. VGS vs. Temperature



Threshold Voltage

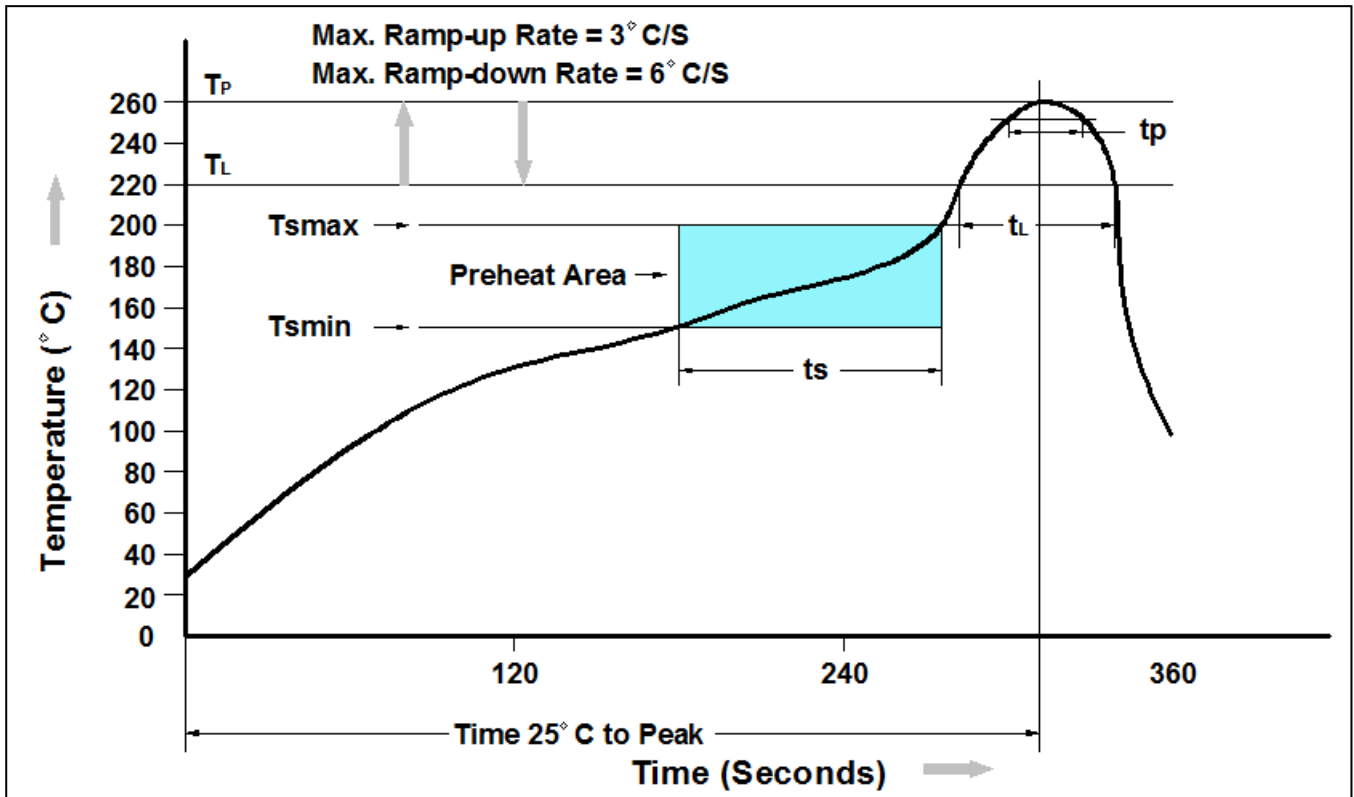


Single Pulse Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Ambient

➤ Recommend IR Reflow Soldering Thermal Profile

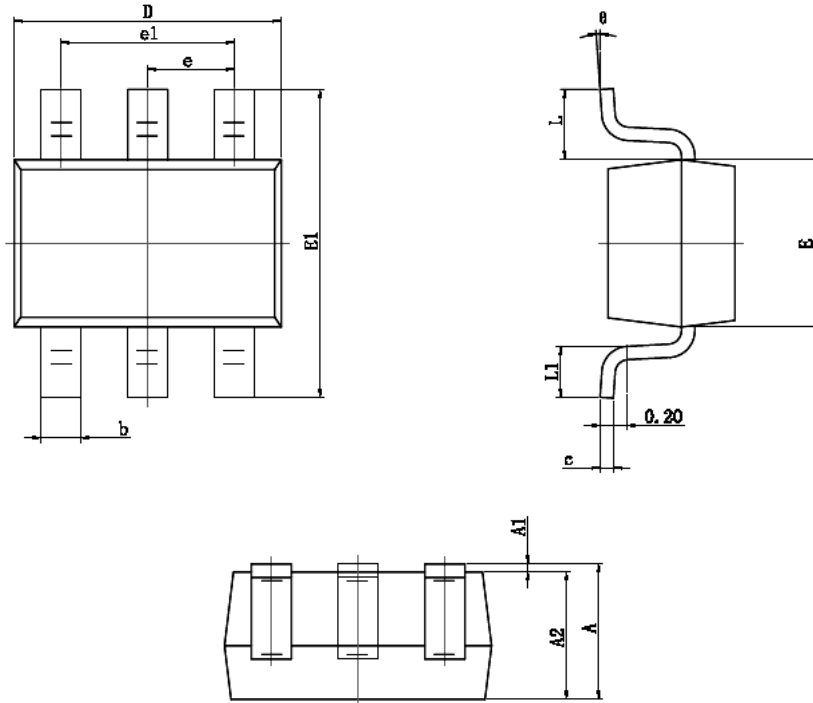


Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T _{smin})	150°C
Temperature Max. (T _{smax})	200°C
Time (t _s) from (T _{smin} to T _{smax})	60-120 seconds
Average Ramp-up Rate (t _L to t _P)	3°C/second max.
Liquidous Temperature (T _L)	217°C
Time (t _L) Maintained Above (T _L)	60 – 150 seconds
Peak Temperature	260°C +0°C / -5°C
Time (t _P) within 5°C of actual Peak Temperature	30 seconds
Ramp-down Rate (T _P to T _L)	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.

➤ Ordering Information

Part Number	Description	Quantity
PAN3992EH	SOT-363 Reel	3000 pcs

➤ Package Information (SOT-363)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

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