

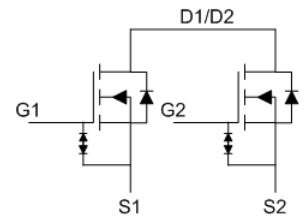
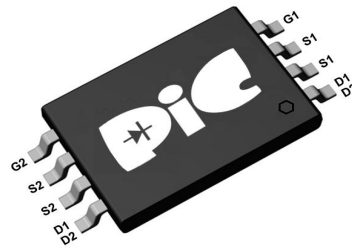
➤ General Description

This PAN27TE26JS Dual N-Channel enhancement mode power field effect transistor is the high density trench technology and this advanced technology can provide excellent $R_{ds(On)}$ 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

- Small footprint and thin package
- Low drain-source ON resistance
- Low leakage current
- TSSOP-8 package design

➤ TSSOP-8



➤ Application

- Lithium Ion Battery Applications
- Notebook PC Applications
- Portable Equipment Applications

➤ Absolute Maximum Ratings

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ₁	$I_D@T_A=25^\circ C$	7	A
Continuous Drain Current ₁	$I_D@T_A=70^\circ C$	5.6	A
Pulsed Drain Current ₂	I_{DM}	80	A
Total Power Dissipation ₃	$P_D@T_A=25^\circ C$	2	W
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ C$
Operating Junction Temperature Range	T_J	-55 to 150	$^\circ C$
Thermal Resistance Junction-ambient ₁	$R_{\theta JA}$	62.5	$^\circ C/W$

➤ Electrical Characteristics ($T_J=25^\circ C$ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	20	---	---	V
Static Drain-Source On-Resistance ²	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=3.5A$	10	12	14.5	m Ω
		$V_{GS}=4.0V, I_D=3.5A$	10.5	12.5	15	
		$V_{GS}=3.7V, I_D=3.5A$	11	13.5	17	
		$V_{GS}=3.1V, I_D=3.5A$	12	14	19.5	
		$V_{GS}=2.5V, I_D=3.5A$	13	16	23	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	0.5	---	1.2	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=16V, V_{GS}=0V, T_J=25^\circ C$	---	---	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$	---	---	± 10	μA
Forward Transconductance	g_{fs}	$V_{DS}=5V, I_D=3.5A$	---	21	---	S
Total Gate Charge (4.5V)	Q_g	$V_{DS}=15V, V_{GS}=4.5V, I_D=7A$	---	11.2	---	nC
Gate-Source Charge	Q_{gs}		---	1.6	---	
Gate-Drain Charge	Q_{gd}		---	2.9	---	
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=10V, V_{GS}=4.5V, R_G=3\Omega, I_D=3.5A$	---	30	---	ns
Rise Time	T_r		---	250	---	
Turn-Off Delay Time	$T_{d(off)}$		---	450	---	
Fall Time	T_f		---	700	---	
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$	---	850	---	pF
Output Capacitance	C_{oss}		---	81	---	
Reverse Transfer Capacitance	C_{rss}		---	70	---	

➤ Diode Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Continuous Source Current ^{1,4}	I_S	$V_G=V_D=0V, \text{Force Current}$	---	---	7	A
Diode Forward Voltage ²	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	---	---	1.2	V

Note :

1. Pulse width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. Ensure that the channel temperature does not exceed $150^\circ C$.
4. The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

➤ Typical Characteristics

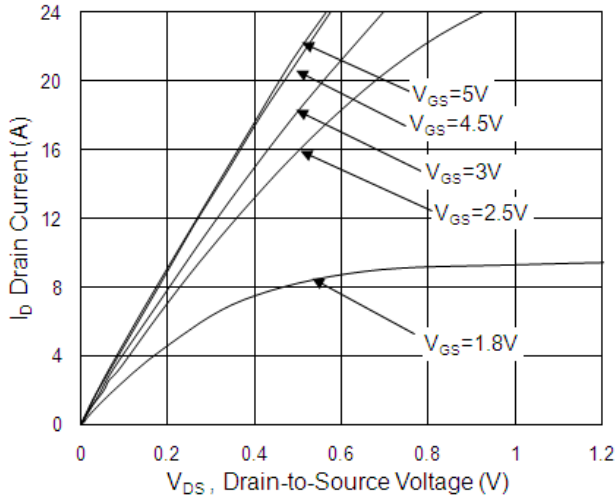


Fig.1 Typical Output Characteristics

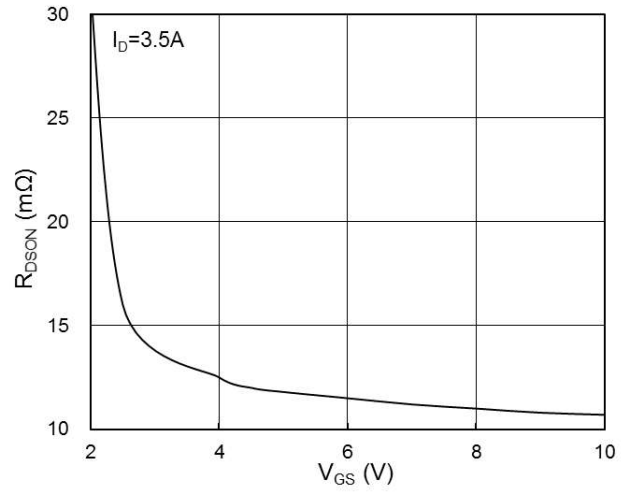


Fig.2 On-Resistance vs. Gate-Source Voltage

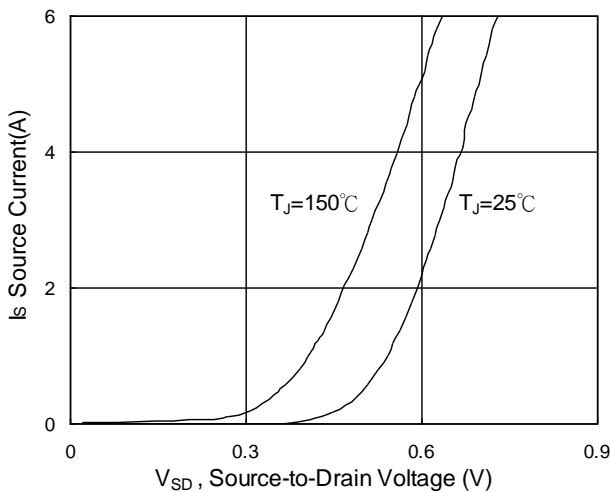


Fig.3 Forward Characteristics of Reverse

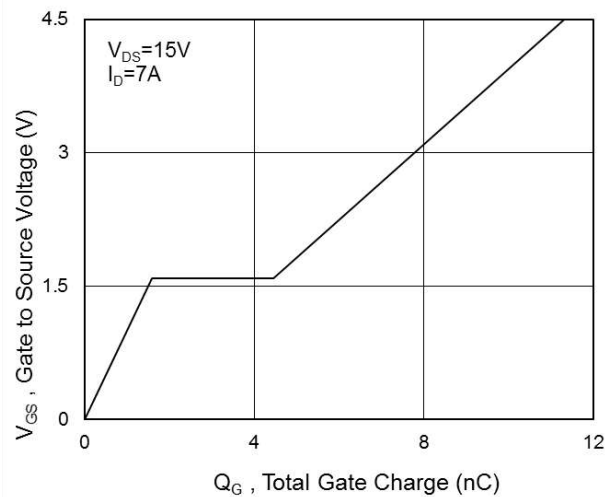


Fig.4 Gate-Charge Characteristics

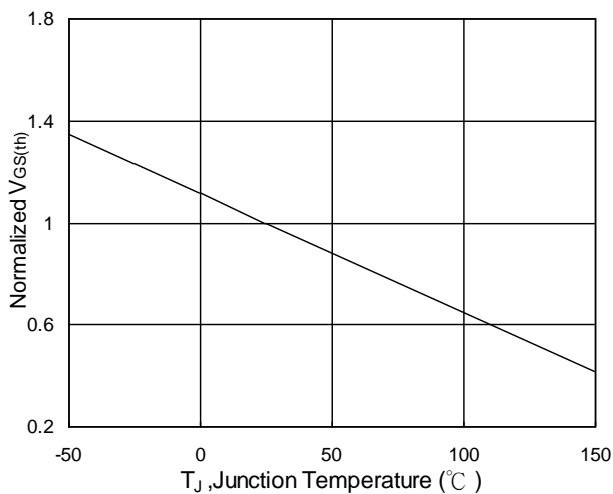


Fig.5 $V_{GS(th)}$ vs. T_J

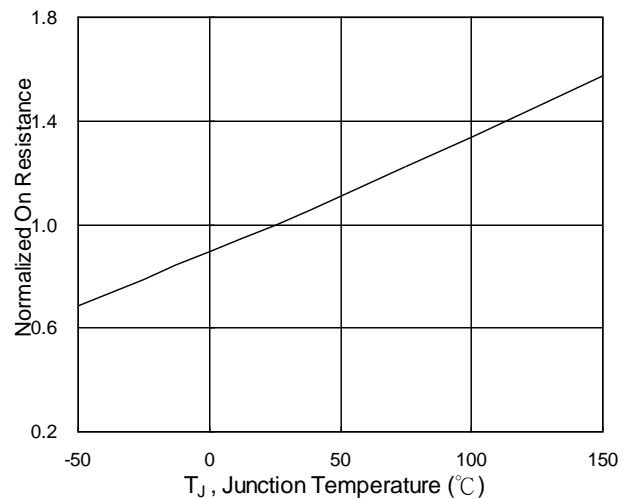


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

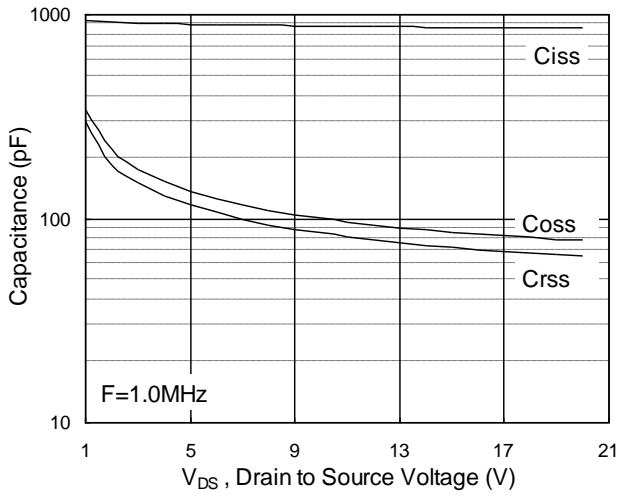


Fig.7 Capacitance

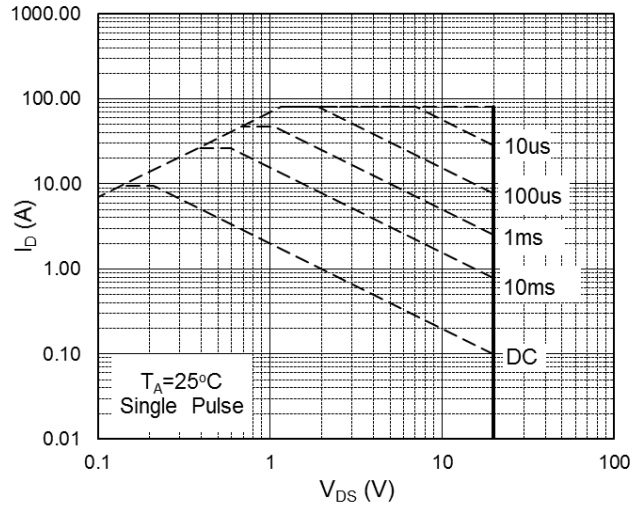


Fig.8 Safe Operating Area

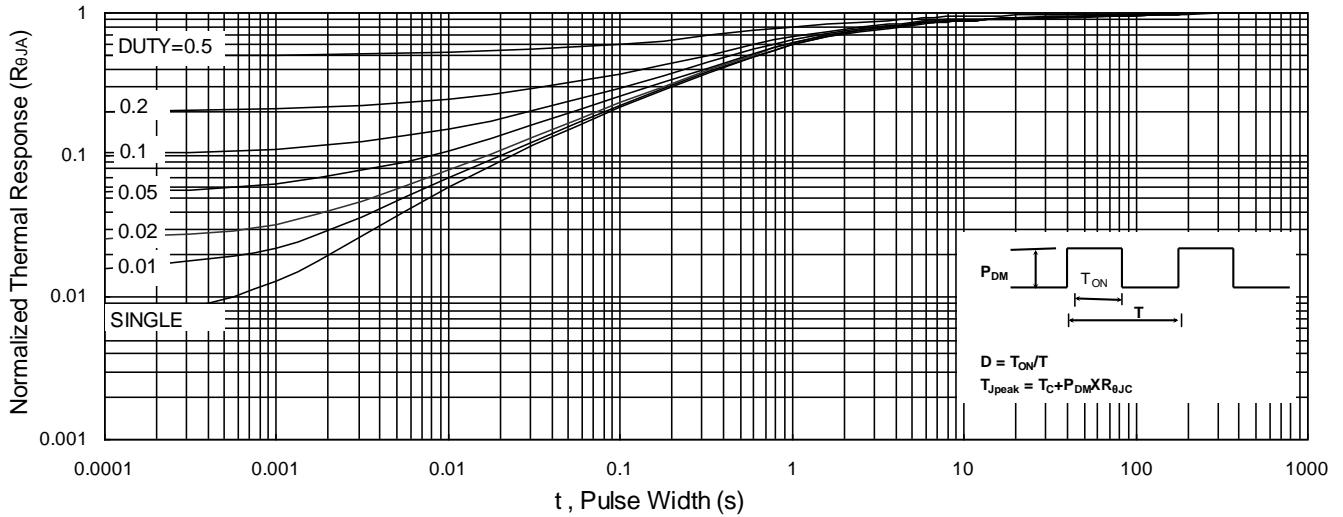


Fig.9 Normalized Maximum Transient Thermal Impedance

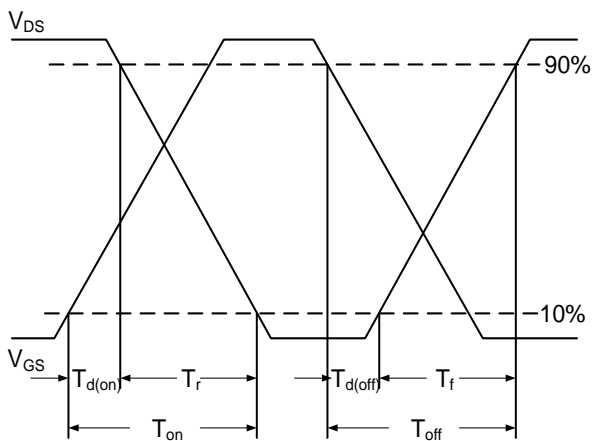


Fig.10 Switching Time Waveform

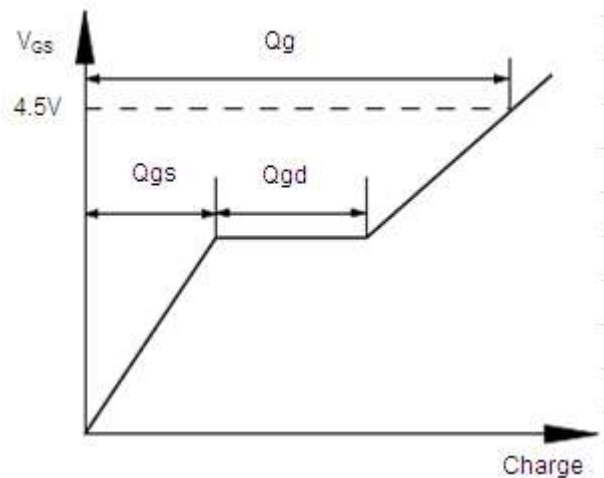


Fig.11 Gate Charge Waveform

➤ Recommend IR Reflow Soldering Thermal Profile

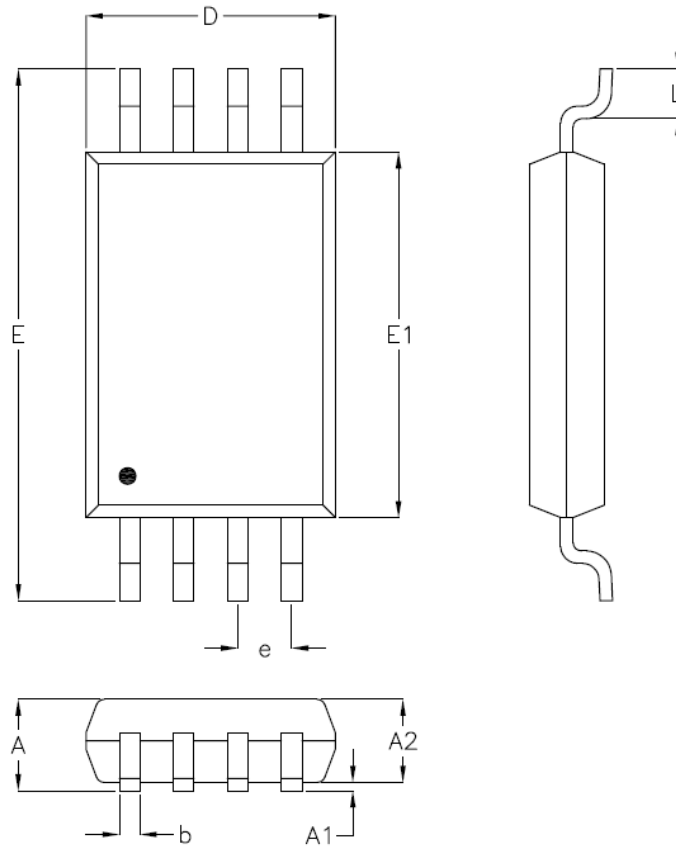


Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T _{smin})	150°C
Temperature Max. (T _{smax})	200°C
Time (t _s) from (T _{smin} to T _{smax})	60-120 seconds
Average Ramp-up Rate (t _L to t _P)	3°C/second max.
Liquidous Temperature (T _L)	217°C
Time (t _L) Maintained Above (T _L)	60 – 150 seconds
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
PAN27TE26JS	TSSOP-8 Reel	3000 pcs

➤ Package Information (TSSOP-8)



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	---	1.20	---	0.047
A1	0.05	0.15	0.002	0.006
A2	0.80	1.05	0.031	0.041
b	0.19	0.30	0.007	0.012
D	2.90	3.10	0.114	0.122
e	0.065 BSC		0.026 BSC	
E	6.25	6.55	0.246	0.258
E1	4.30	4.50	0.169	0.177
L	0.45	0.75	0.018	0.030

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