

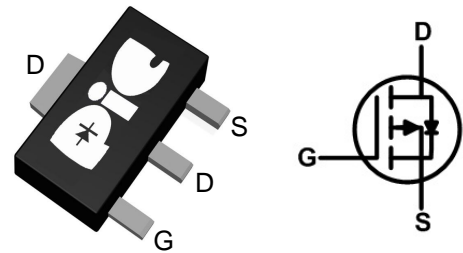
➤ General Description

This PAP40TK43K P-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

- Super high density cell design for extremely
- low $R_{DS(ON)}$
- SOT-89-3L package design

➤ SOT-89-3L



➤ Application

- Motor and Load Control
- LCD TV Inverter & AD/DC Inverter Systems.
- Backlight Inverter for LCD Display
- Load Switch
- CCFL Inverter

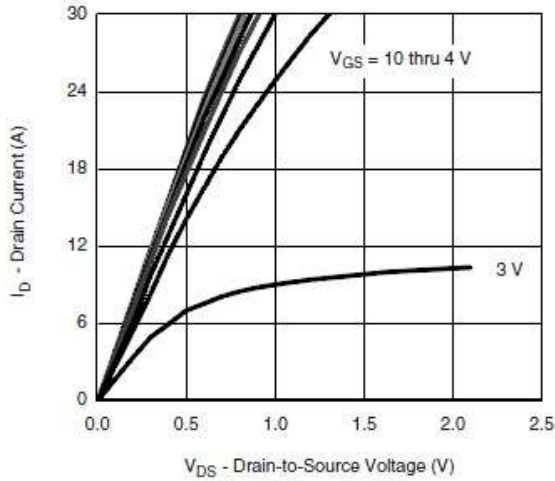
➤ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	-40	V
Gate -Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current($T_J=150^\circ C$)	I_D	$T_A=25^\circ C$	-4.6
		$T_A=70^\circ C$	-3.6
Pulsed Drain Current	I_{DM}	-10	A
Continuous Source Current(Diode Conduction)	I_S	-1.6	A
Power Dissipation	P_D	$T_A=25^\circ C$	1.45
		$T_A=70^\circ C$	0.6
Operating Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{STG}	-55/150	$^\circ C$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	120	$^\circ C/W$

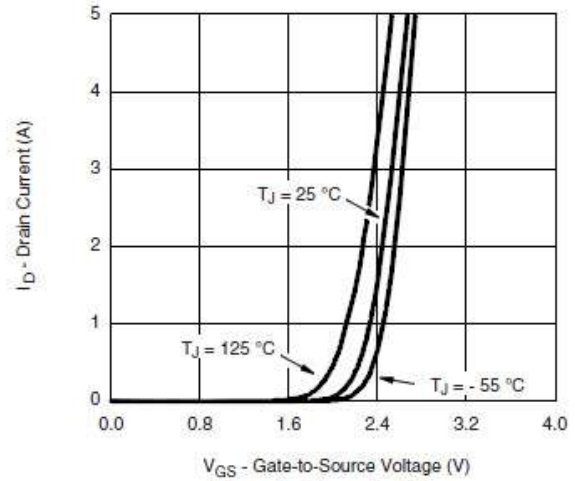
➤ Electrical Characteristics (T_A=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D = -250\mu A$	-40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D = -250\mu A$	-1.0		-3.0	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -40V, V_{GS}=0V$			-1	uA
		$V_{DS} = -40V, V_{GS}=0V$ $T_J=85^\circ C$			-20	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq -5V, V_{GS} = -10V$	-20			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -4.6A$		36	43	mΩ
		$V_{GS} = -4.5V, I_D = -3.6A$		48	58	
Forward Transconductance	g_{FS}	$V_{DS} = -15V, I_D = -5A$		20		S
Diode Forward Voltage	V_{SD}	$I_S = -2A, V_{GS}=0V$		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=-20V, V_{GS}=-4.5V$ $I_D = -3.0A$		13	20	nC
Gate-Source Charge	Q_{gs}			4.5		
Gate-Drain Charge	Q_{gd}			6.5		
Input Capacitance	C_{iss}	$V_{DS}=-20V, V_{GS}=0V$ $f=1MHz$		1100		pF
Output Capacitance	C_{oss}			145		
Reverse Transfer Capacitance	C_{riss}			115		
Turn-On Time	$t_{d(on)}$	$V_{DD}=-20V, R_L=4\Omega$ $I_D=-3.0A, V_{GEN}=-4.5V$ $R_G=1\Omega$		40	80	ns
	t_r			55	100	
Turn-Off Time	$t_{d(off)}$			30	60	
	t_f			12	20	

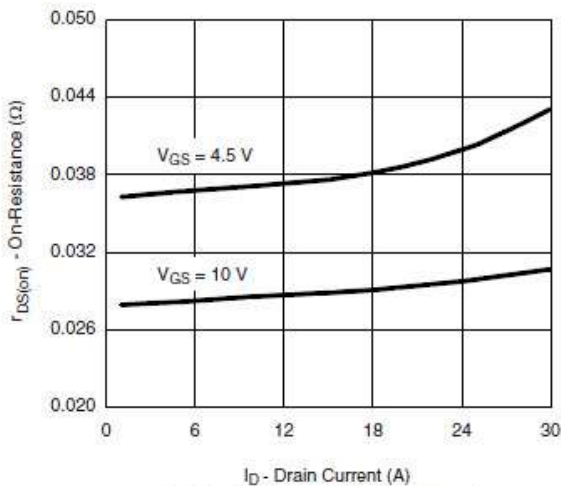
➤ Typical Characteristics



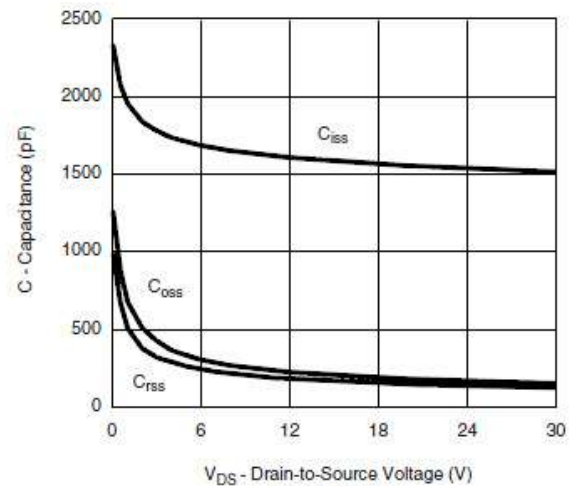
Output Characteristics



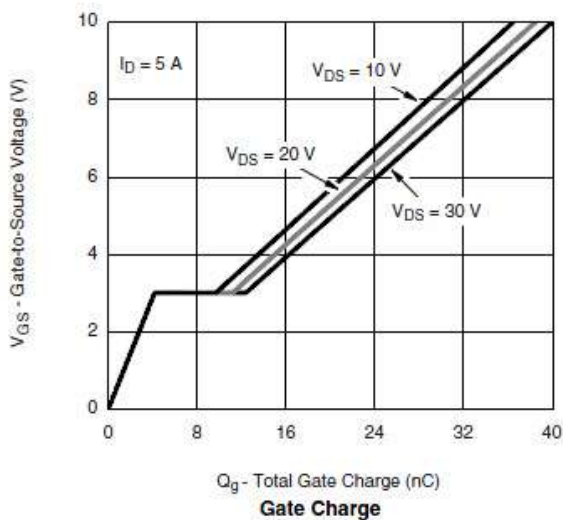
Transfer Characteristics



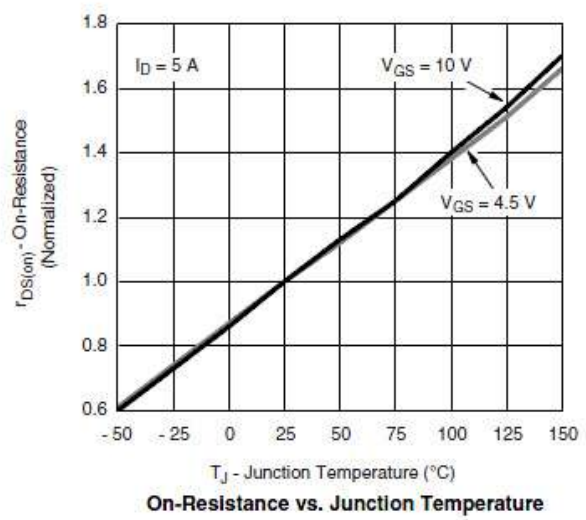
On-Resistance vs. Drain Current



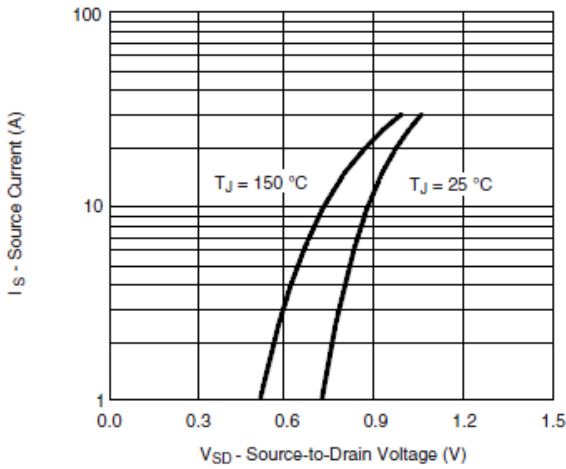
Capacitance



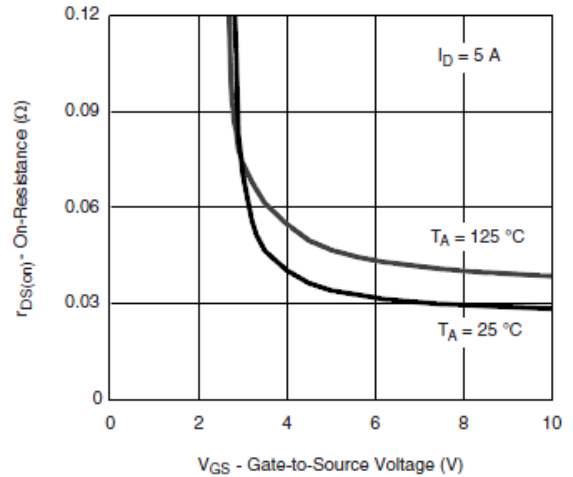
Gate Charge



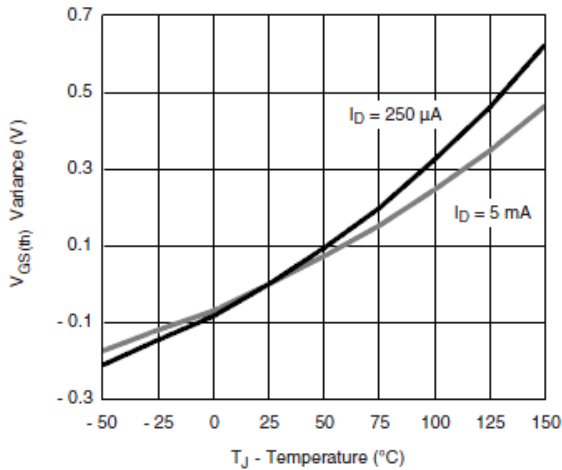
On-Resistance vs. Junction Temperature



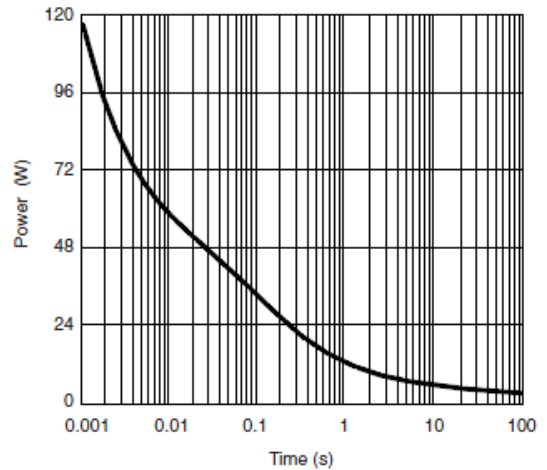
Source-Drain Diode Forward Voltage



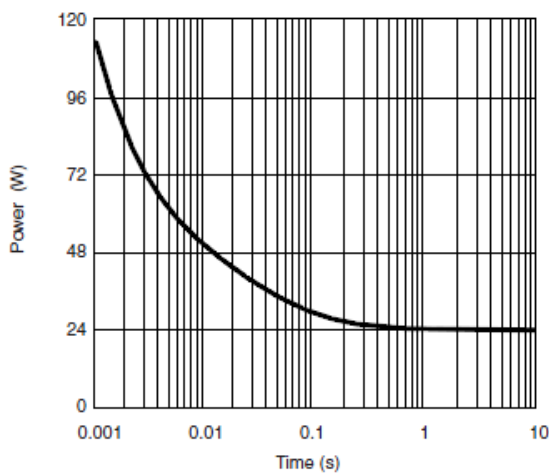
On-Resistance vs. Gate-to-Source Voltage



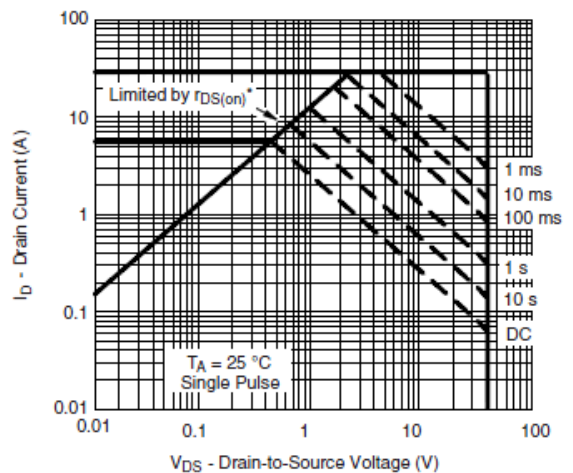
Threshold Voltage



Single Pulse Power, Junction-to-Ambient



Single Pulse Power, Junction-to-Case



Safe Operating Area, Junction-to-Ambient

➤ Recommend IR Reflow Soldering Thermal Profile

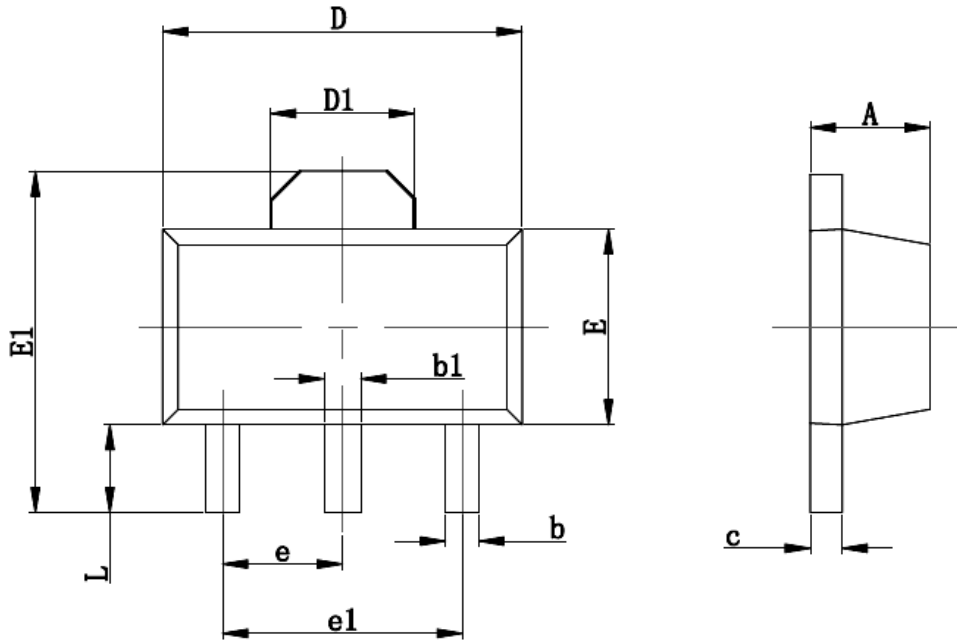


Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T _{smin})	150°C
Temperature Max. (T _{smax})	200°C
Time (t _s) from (T _{smin} to T _{smax})	60-120 seconds
Average Ramp-up Rate (t _L to t _P)	3°C/second max.
Liquidous Temperature (T _L)	217°C
Time (t _L) Maintained Above (T _L)	60 – 150 seconds
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
PAP40TK43K	SOT-89-3L Reel	1000 pcs

➤ Package Information (SOT-89-3L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.197
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060TYP	
e1	3.000 TYP		0.118TYP	
L	0.900	1.200	0.035	0.047

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