

**Features**

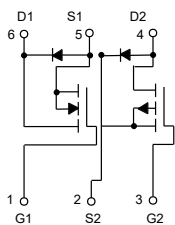
- High Density Cell Design for Low  $R_{DS(on)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

**Maximum Ratings**

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 62.5°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Total Power Dissipation	$P_D$	2	W
<b>N-Channel</b>			
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	5.8	A
<b>P-Channel</b>			
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	-4.1	A

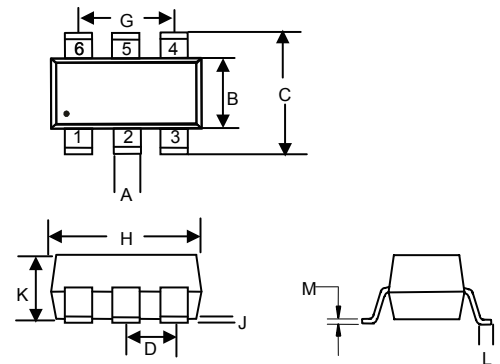
**Internal Structure**



**Marking:3724**

**Dual  
N&P-Channel  
MOSFET**

**SOT23-6L**



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.012	0.020	0.30	0.50	
B	0.051	0.070	1.30	1.80	
C	0.087	0.126	2.20	3.20	
D	0.037		0.95		TYP.
G	0.074		1.90		TYP.
H	0.106	0.122	2.70	3.10	
J	0.002	0.006	0.05	0.15	
K	0.030	0.051	0.75	1.30	
L	0.012	0.024	0.30	0.60	
M	0.003	0.008	0.08	0.22	

**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**
**N-Channel**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V, V_{GS}=0V$			1	$\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1		2.5	V
Drain-Source On-Resistance <sup>(Note1)</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=5.8A$		21	30	m $\Omega$
		$V_{GS}=4.5V, I_D=4.8A$		27	42	
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=1A$			1	V
Forward Transconductance <sup>(Note 1)</sup>	$g_{FS}$	$V_{DS}=5V, I_D=5.8A$	5			S
<b>Dynamic Characteristics<sup>(Note2)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V, f=1MHz$			820	pF
Output Capacitance	$C_{oss}$			118		
Reverse Transfer Capacitance	$C_{rss}$			85		
Gate Resistance	$R_g$	$V_{DS}=0V, V_{GS}=0V, f=1MHz$			1.5	$\Omega$
<b>Switching Characteristics<sup>(Note2)</sup></b>						
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=15V, R_L=2.6\Omega, R_{GEN}=3\Omega$			6.5	ns
Turn-On Rise Time	$t_r$			3.1		
Turn-Off Delay Time	$t_{d(off)}$			15.1		
Turn-Off Fall Time	$t_f$			2.7		

**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

**P-Channel**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-24V, V_{GS}=0V$			-1	$\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1		-2.2	V
Drain-Source On-Resistance <sup>(Note1)</sup>	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-4.1A$		45	60	m $\Omega$
		$V_{GS}=-4.5V, I_D=-3A$		59	80	
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=-1A$			-1	V
Forward Transconductance <sup>(Note 1)</sup>	$g_{FS}$	$V_{DS}=-5V, I_D=-4A$	5.5			S
<b>Dynamic Characteristics<sup>(Note2)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=-15V, V_{GS}=0V, f=1MHz$		700		pF
Output Capacitance	$C_{oss}$			120		
Reverse Transfer Capacitance	$C_{rss}$			75		
<b>Switching Characteristics<sup>(Note2)</sup></b>						
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10V, V_{DS}=-15V, R_L=3.6\Omega, R_{GEN}=3\Omega$		8.6		ns
Turn-On Rise Time	$t_r$			5		
Turn-Off Delay Time	$t_{d(off)}$			28.2		
Turn-Off Fall Time	$t_f$			13.5		

Note: 1. Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

2. Guaranteed by Design, Not Subject to Production Testing.

## Curve Characteristics(N-Channel)

Fig. 1 - Output Characteristics

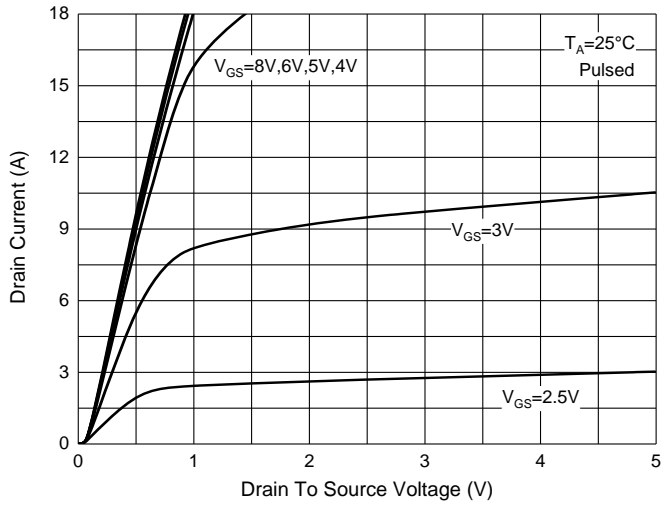


Fig. 2 - Transfer Characteristics

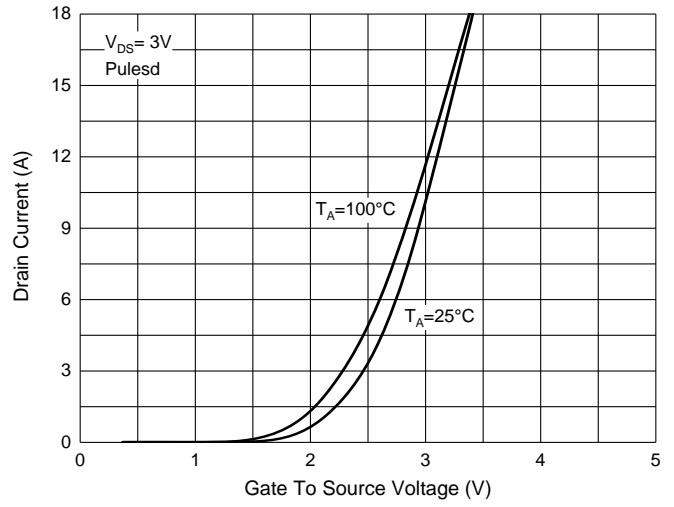


Fig. 3 -  $R_{DS(ON)} - I_D$

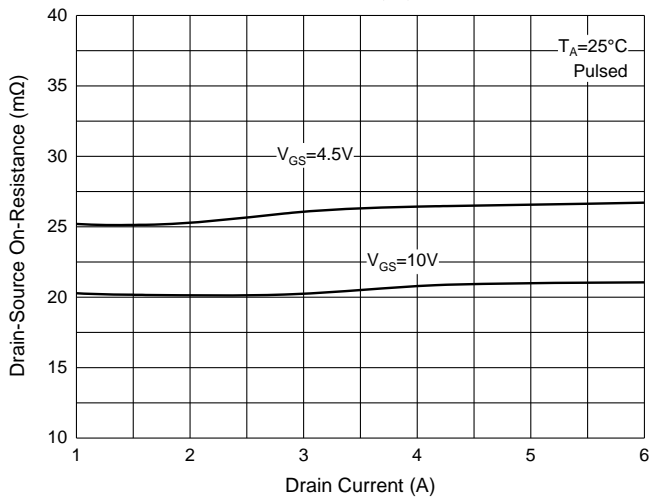


Fig. 4 -  $R_{DS(ON)} - V_{GS}$

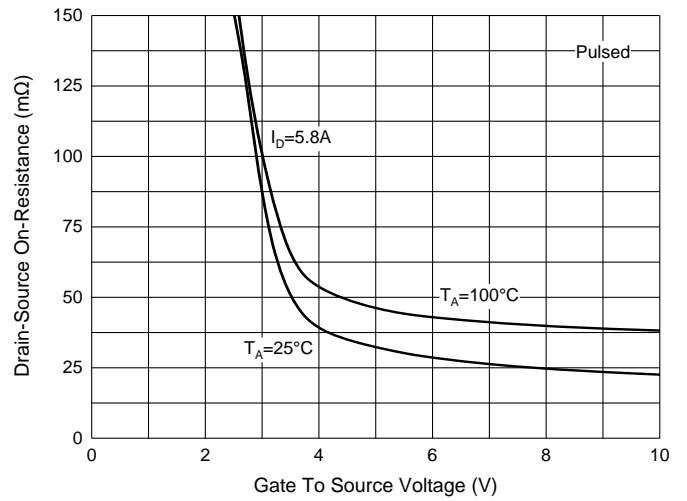


Fig. 5 -  $I_S - V_{SD}$

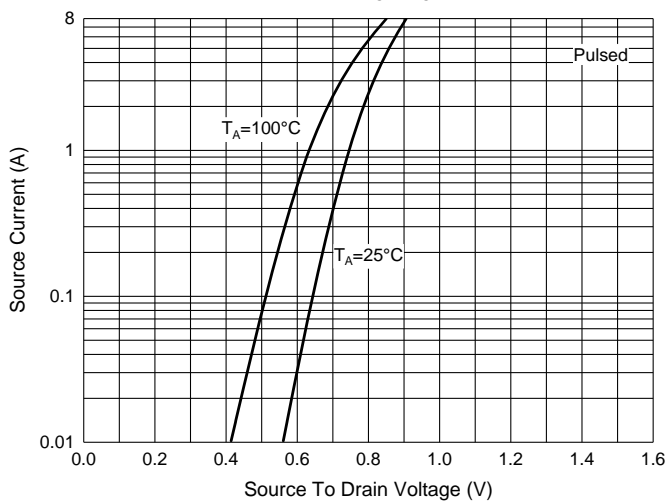
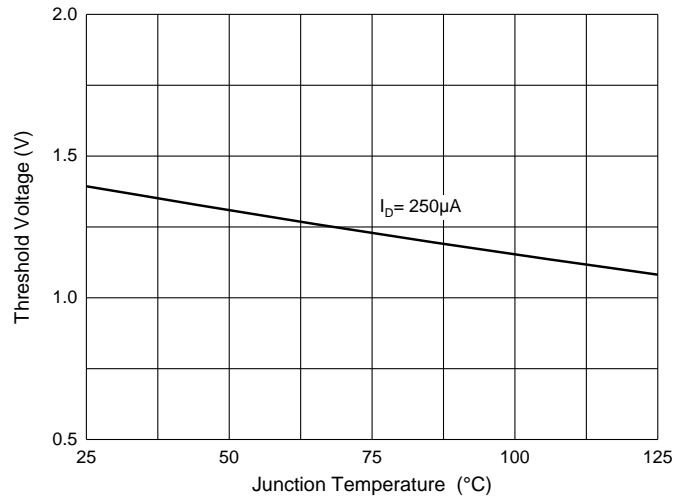


Fig. 6 - Threshold Voltage



**Curve Characteristics(P-Channel)**

Fig. ĩ - Output Characteristics

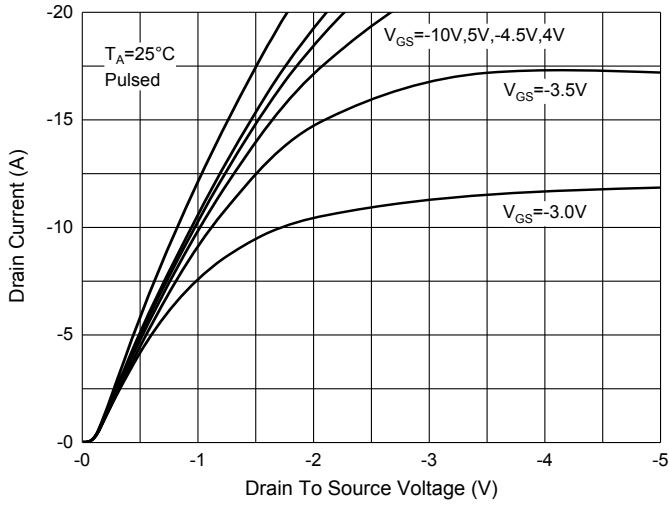


Fig. ì - Transfer Characteristics

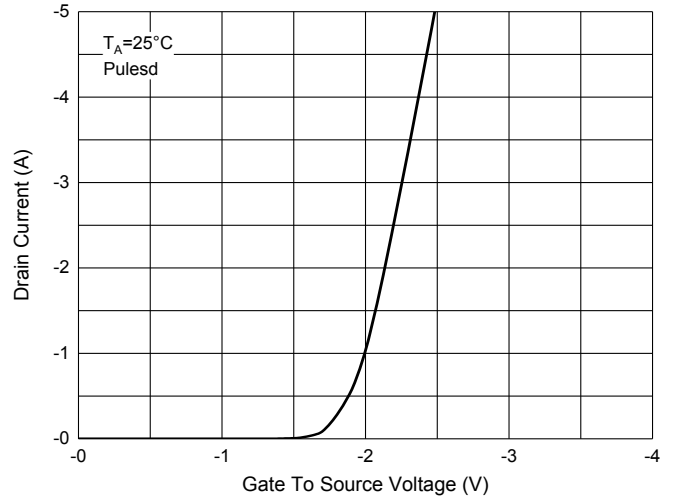


Fig. J -  $R_{DS(ON)} - I_D$

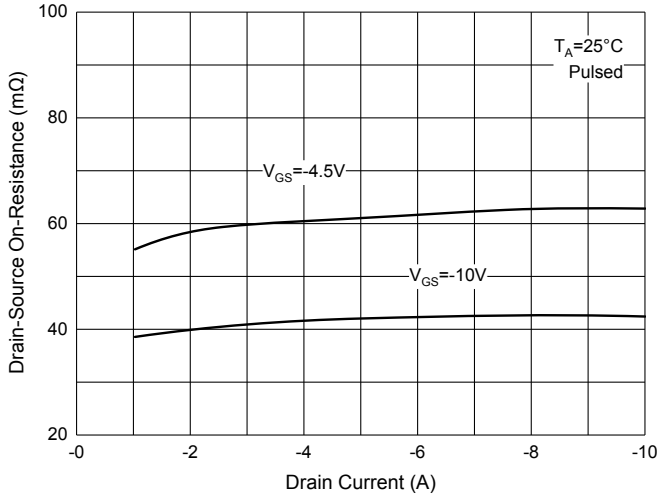


Fig. K -  $R_{DS(ON)} - V_{GS}$

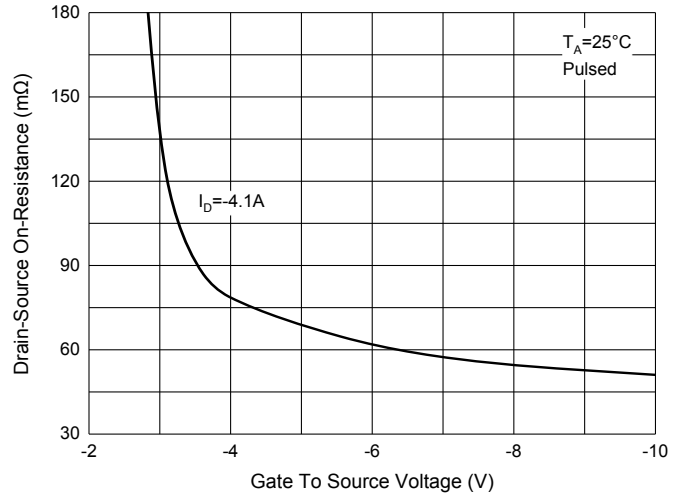
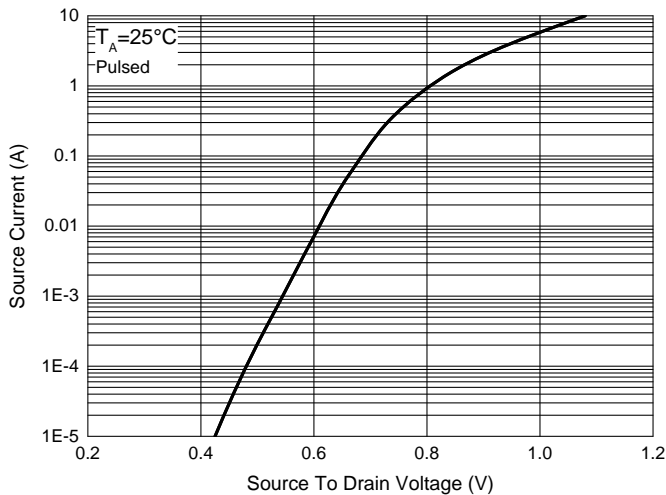


Fig. 11 -  $I_S - V_{SD}$



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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