

Features

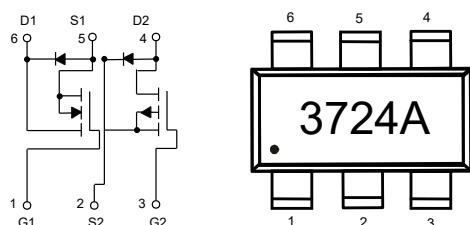
- High Density Cell Design for Low $R_{DS(on)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

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

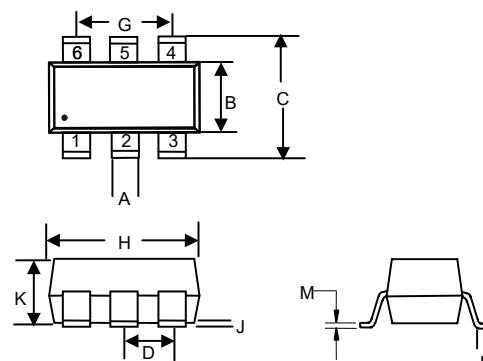
Parameter	Symbol	Rating	Unit
Total Power Dissipation	P_D	2	W
N-Channel			
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	4.5	A
P-Channel			
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-3.5	A

Internal Structure and Marking Code



Dual N&P-Channel MOSFET

SOT23-6L



DIMENSIONS					
DIM	INCHES		MM		NOTE
	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
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	30			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	2.5	V
Drain-Source On-Resistance ^(Note1)	R _{DS(on)}	V _{GS} =10V, I _D =3A			35	mΩ
		V _{GS} =4.5V, I _D =2A			50	mΩ
Diode Characteristics						
Diode Forward Voltage ^(Note1)	V _{SD}	V _{GS} =0V, I _S =1A			1.2	V
Reverse Recovery Time	t _{rr}	I _{SD} =3.6 A, dI _{SD} /dt=100A/μs		17.3		nS
Reverse Recovery Charge	Q _{rr}			1.66		nC
Dynamic Characteristics ^(Note2)						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz		315		pF
Output Capacitance	C _{oss}			59		
Reverse Transfer Capacitance	C _{rss}			48		
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =15V, I _D =3.6A		6.08		nC
Gate-Source Charge	Q _{gs}			1.26		
Gate-Drain Charge	Q _{gd}			1.32		
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V, V _{DS} =15V, R _{GEN} =3Ω, R _L =4.1Ω		3.8		ns
Turn-On Rise Time	t _r			23.2		
Turn-Off Delay Time	t _{d(off)}			7		
Turn-Off Fall Time	t _f			18.6		

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

P-Channel

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-30			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V			-1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.5	-2.5	V
Drain-Source On-Resistance ^(Note1)	R _{DS(on)}	V _{GS} =-10V, I _D =-3A			90	mΩ
		V _{GS} =-4.5V, I _D =-2A			115	mΩ
Diode Characteristics						
Diode Forward Voltage ^(Note1)	V _{SD}	V _{GS} =0V, I _S =-1A			-1.2	V
Reverse Recovery Time	t _{rr}	I _{SD} =-3 A, dI _{SD} /dt=100A/μs		25		nS
Reverse Recovery Charge	Q _{rr}			3.8		nC
Dynamic Characteristics ^(Note2)						
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, f=1MHz		365		pF
Output Capacitance	C _{oss}			59		
Reverse Transfer Capacitance	C _{rss}			45		
Total Gate Charge	Q _g	V _{DS} =-10V, V _{GS} =-15V, I _D =-3A		7.5		nC
Gate-Source Charge	Q _{gs}			1.7		
Gate-Drain Charge	Q _{gd}			1.2		
Turn-On Delay Time	t _{d(on)}	V _{GS} =-10V, V _{DS} =-15V, R _{GEN} =2.5Ω, I _{DS} =-1A		3.2		ns
Turn-On Rise Time	t _r			17.8		
Turn-Off Delay Time	t _{d(off)}			18		
Turn-Off Fall Time	t _f			23.5		

Notes:

1. Pulse Test: Pulse Width=300 μs , Duty Cycle $\leq 2\%$.
2. These Parameters Have No Way To Verify.

Curve Characteristics (N-Channel)

Fig. 1 - Output Characteristics

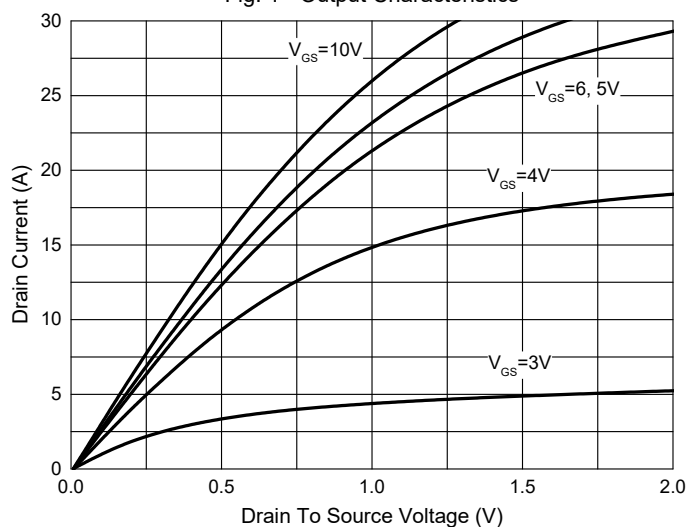


Fig. 2 - Transfer Characteristics

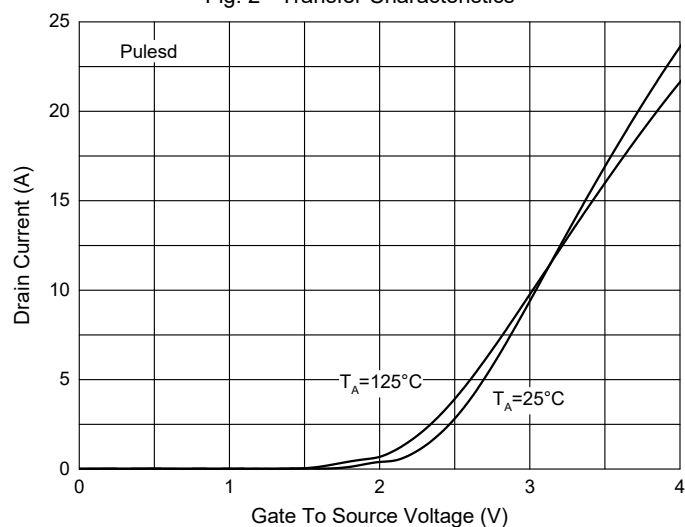


Fig. 3 - $R_{DS(ON)} - I_D$

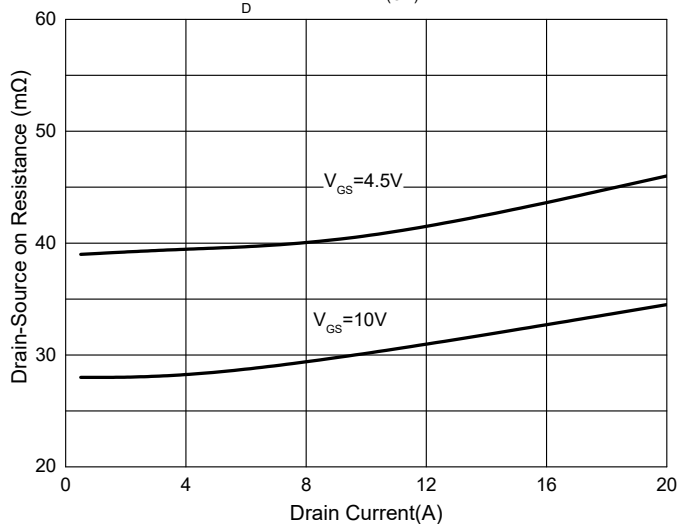


Fig. 4 - Normalized On Resistance Characteristics

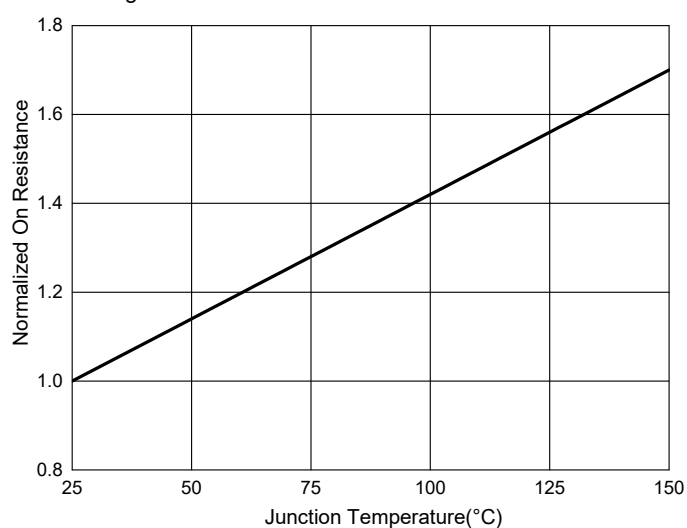


Fig. 5 - Gate Charge

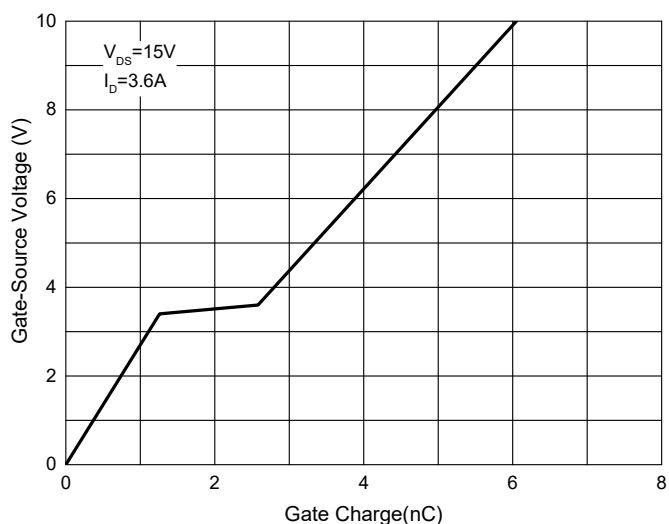
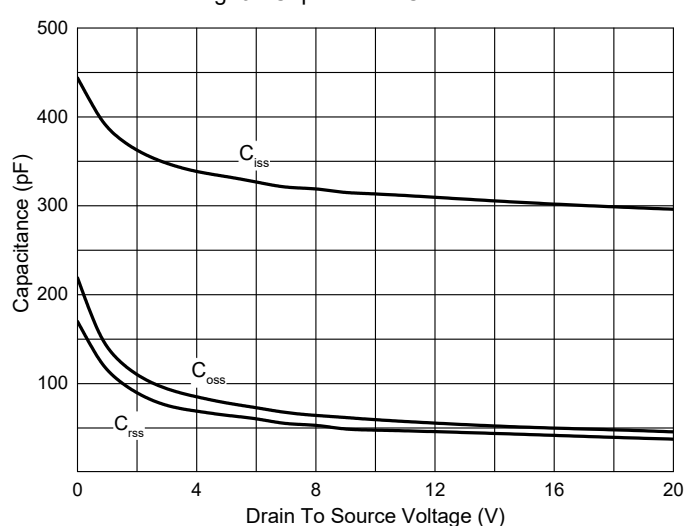


Fig. 6 - Capacitance Characteristics



Curve Characteristics (P-Channel)

Fig. 7 - Output Characteristics

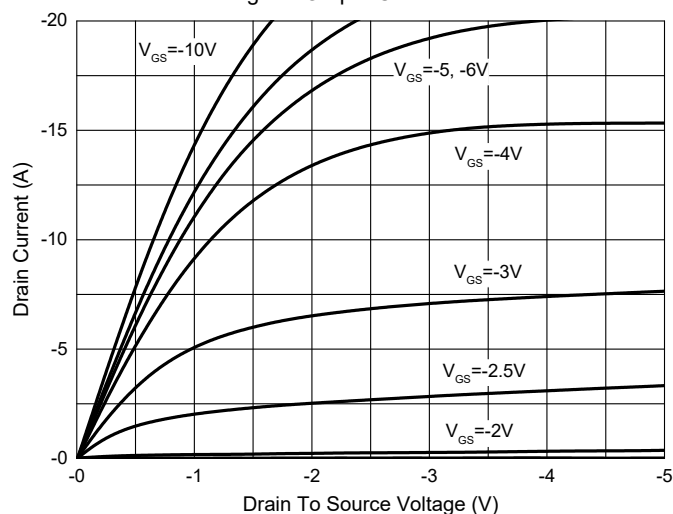


Fig. 8 - Transfer Characteristics

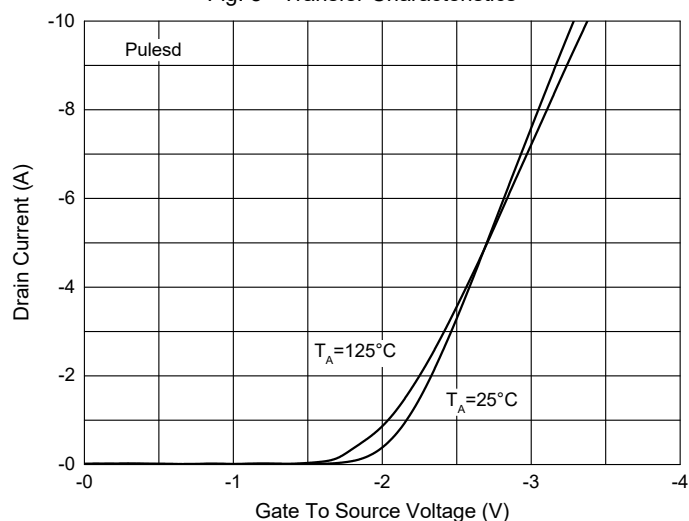


Fig. 9 - $R_{DS(ON)} - I_D$

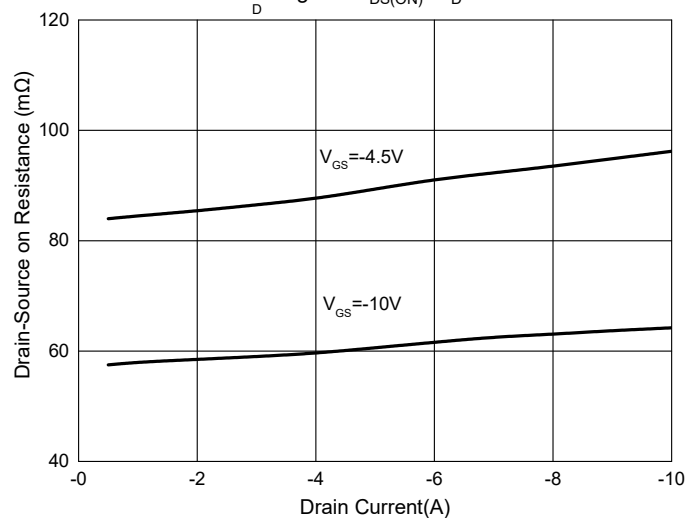


Fig. 10 - Normalized On Resistance Characteristics

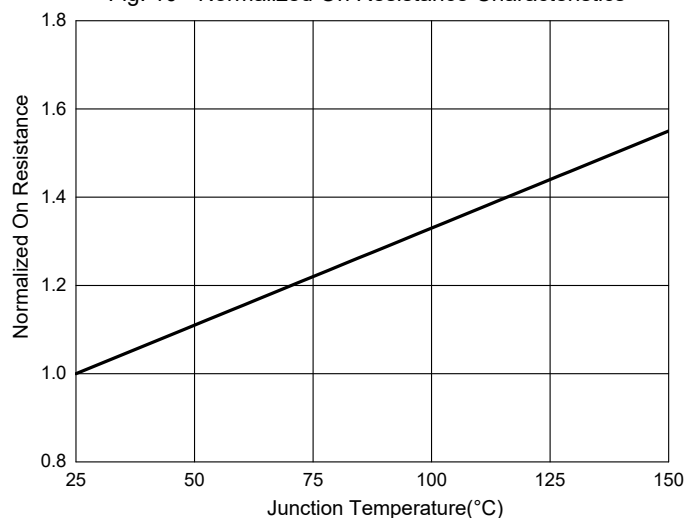


Fig. 11 - Gate Charge

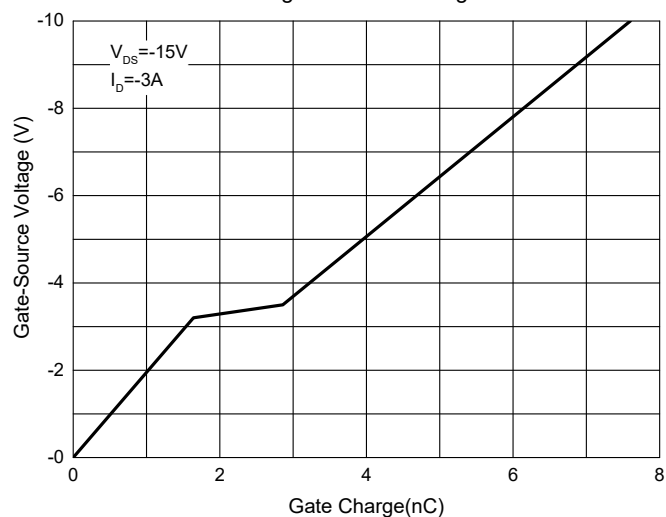
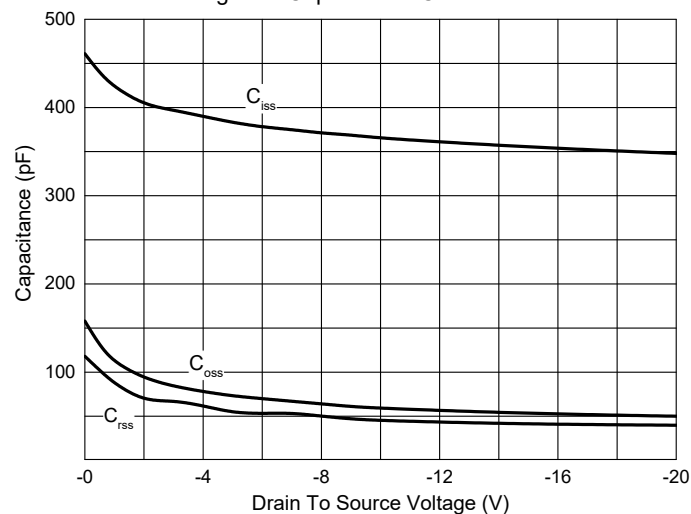


Fig. 12 - Capacitance Characteristics



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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