

30V N-Channel Enhancement-Mode MOSFET

$V_{DS} = 30V$

$R_{DS(ON)}, V_{GS}@10V, I_{ds}@8.5A = 28m\Omega$

$R_{DS(ON)}, V_{GS}@4.5V, I_{ds}@5A = 42m\Omega$

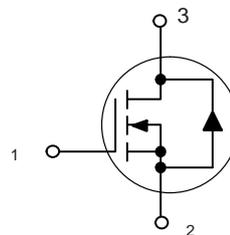
Features

Advanced trench process technology
High Density Cell Design For Ultra Low On-Resistance
High Power and Current Handling Capability

- Simple Drive Requirement
- Small Package Outline
- Surface Mount Device



N - Channel



Ordering Information

Device	Marking	Shipping
FTK4812	N48	3000/Tape&Reel

Maximum Ratings and Thermal Characteristics ($T_A = 25^\circ C$ unless otherwise noted)

Symbol	Parameter	Limit	Unit	
V_{DS}	Drain-Source Voltage	30	V	
V_{GS}	Gate-Source Voltage	± 20		
I_D	Continuous Drain Current	6.9	A	
I_{DM}	Pulsed Drain Current ¹⁾	30		
P_D	Maximum Power Dissipation	$T_A = 25^\circ C$	2	W
		$T_A = 75^\circ C$	1.44	
T_J, T_{stg}	Operating Junction and Storage Temperature Range	-55 to 150	$^\circ C$	
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	24	$^\circ C/W$	
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance (PCB mounted) ²⁾	62.5		

Note: 1. Repetitive Rating; Pulse width limited by the maximum junction temperature
2. 1-in² 2oz Cu PCB board
3. Guaranteed by design; not subject to production testing



FTK4812

Electrical Characteristics

Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
Static						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	30			V
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS} = 4.5V, I_D = 5A$		35.0	42.0	m Ω
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS} = 10V, I_D = 8.5A$		22.0	28.0	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	3	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
I_{GSS}	Gate Body Leakage	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
g_{fs}	Forward Transconductance	$V_{DS} = 5V, I_D = 6.9A$		15.4		S
Dynamic³⁾						
Q_g	Total Gate Charge	$V_{DS} = 15V, I_D = 8.5A$ $V_{GS} = 10V$		13	20	nC
Q_{gs}	Gate-Source Charge			4.2		
Q_{gd}	Gate-Drain Charge			3.1		
$t_{d(on)}$	Turn-On Delay Time	$V_{DD} = 15V, R_L = 15\Omega$ $I_D = 1A, V_{GEN} = 10V$ $R_G = 6\Omega$		9		ns
t_r	Turn-On Rise Time			14		
$t_{d(off)}$	Turn-Off Delay Time			30		
t_f	Turn-Off Fall Time			5		
C_{iss}	Input Capacitance	$V_{DS} = 15V, V_{GS} = 0V$ $f = 1.0\text{ MHz}$		610		pF
C_{oss}	Output Capacitance			100		
C_{rss}	Reverse Transfer Capacitance			77		
Source-Drain Diode						
I_S	Max. Diode Forward Current				3	A
V_{SD}	Diode Forward Voltage	$I_S = 1A, V_{GS} = 0V$			1.3	V

Note. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

Typical Electrical Characteristics

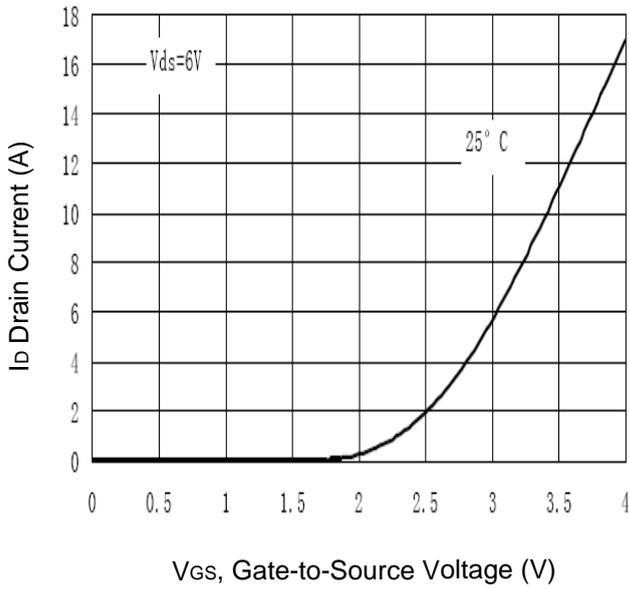


Figure 1. Transfer Characteristics

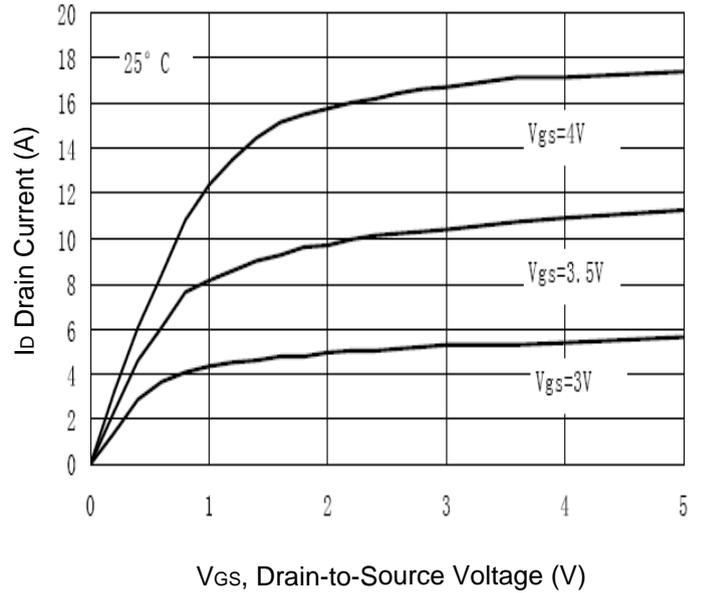


Figure 2. On-Region Characteristics

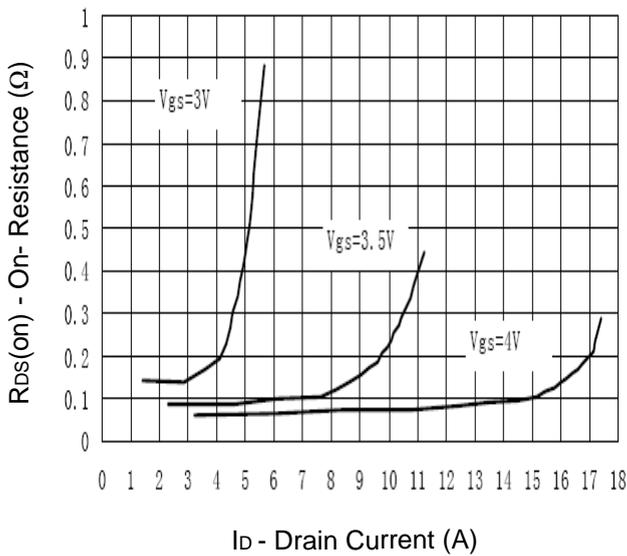


Figure 3. On-Resistance versus Drain Current

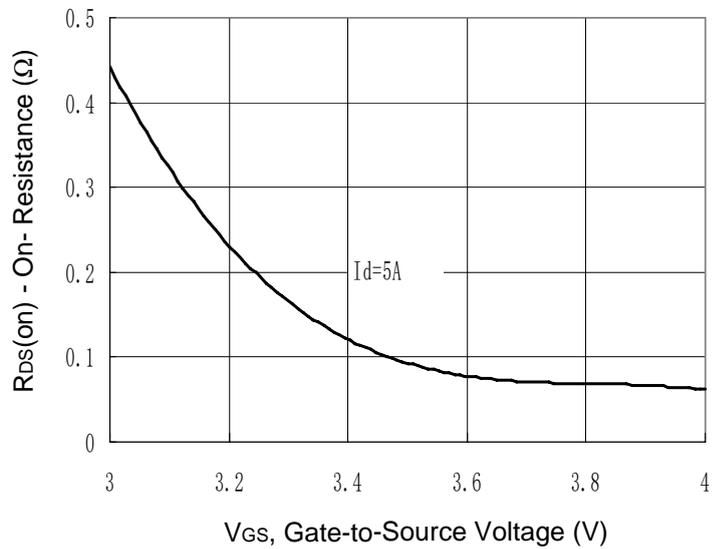
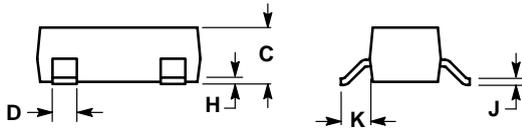
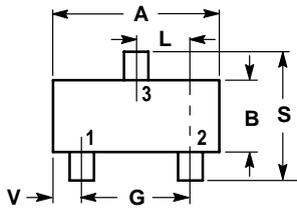


Figure 4. On-Resistance vs. Gate-to-Source Voltage

SOT-23

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

