



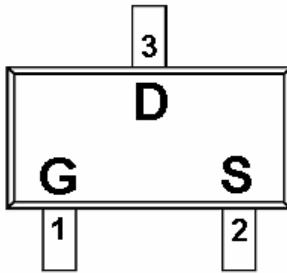
KD1012

Dual N Channel Enhancement Mode MOSFET
0.65A

DESCRIPTION

KD1012 is the N-Channel enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance and provide superior switching performance. These devices are particularly suited for low voltage applications such as notebook computer power management and other battery powered circuits where high-side switching, low in-line power loss, and resistance to transients are needed.

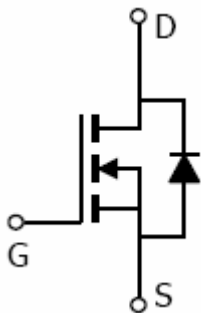
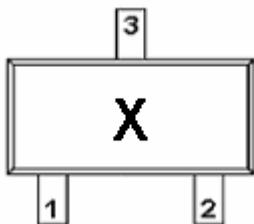
PIN CONFIGURATION SOT-523 / SC-89



FEATURE

- 20V/0.65A, $R_{DS(ON)} = 380\text{ohm}@V_{GS} = 4.5V$
- 20V/0.55A, $R_{DS(ON)} = 450\text{ohm}@V_{GS} = 2.5V$
- 20V/0.45A, $R_{DS(ON)} = 800\text{ohm}@V_{GS} = 1.8V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional low on-resistance and maximum DC current capability
- SOT-523 / SC89 package design

PART MARKING



KD1012

Dual N Channel Enhancement Mode MOSFET
0.65A

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit	
Drain-Source Voltage	V _{DSS}	20	V	
Gate-Source Voltage	V _{GSS}	+/-12	V	
Continuous Drain Current (T _J =150°C)	I _D	T _A =25°C	0.65	A
		T _A =80°C	0.45	
Pulsed Drain Current	I _{DM}	1.0	A	
Continuous Source Current (Diode Conduction)	I _S	0.3	A	
Power Dissipation	P _D	T _A =25°C	0.27	W
		T _A =70°C	0.16	
Operation Junction Temperature	T _J	-55/150	°C	
Storage Temperature Range	T _{STG}	-55/150	°C	

KD1012

Dual N Channel Enhancement Mode MOSFET
0.65A

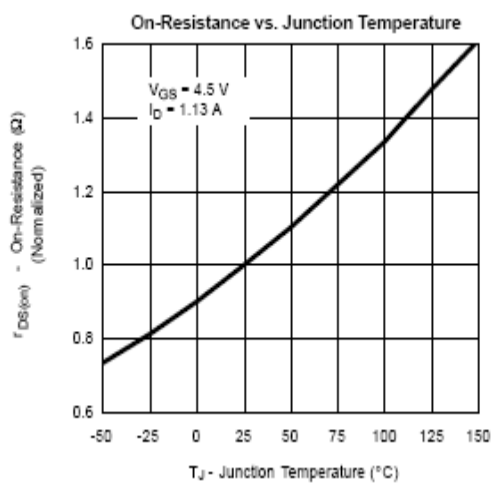
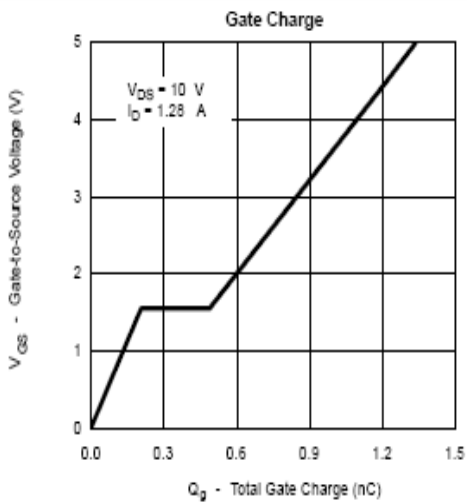
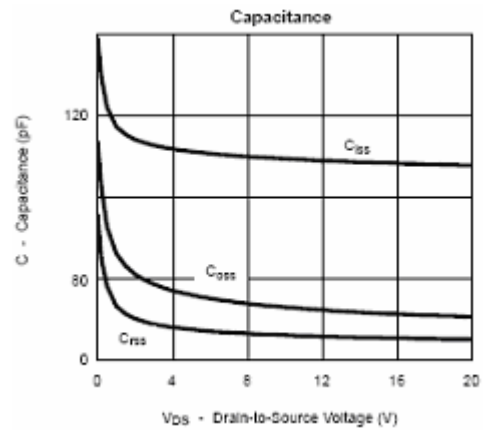
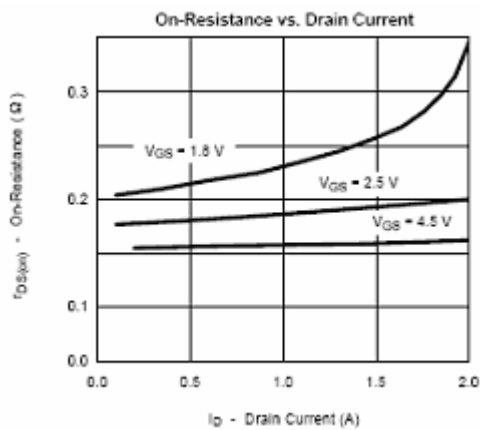
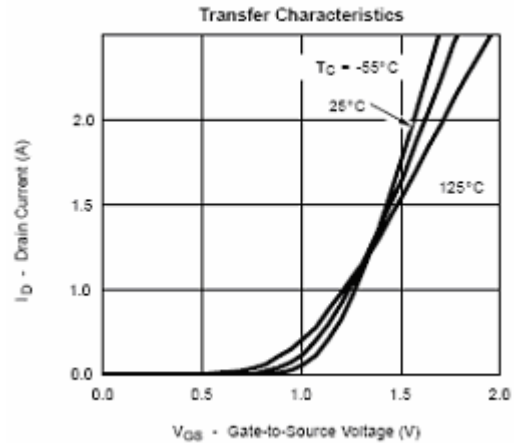
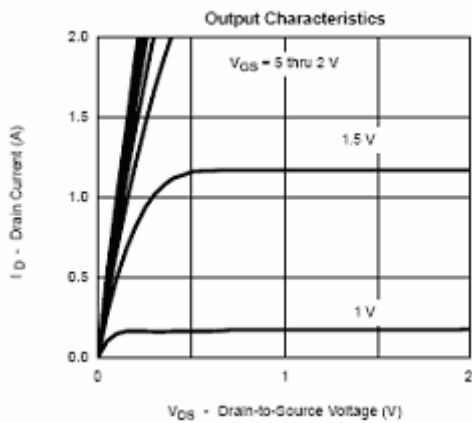
ELECTRICAL CHARACTERISTICS (Ta = 25°C Unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit	
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.35		1.0	V	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=+/-12V$			100	nA	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$			1	uA	
		$V_{DS}=20V, V_{GS}=0V$ $T_J=55^\circ C$			5		
On-State Drain Current	$I_{D(on)}$	$V_{DS} \leq 4.5V, V_{GS}=5V$	0.7			A	
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=0.65A$		260	380	mΩ	
		$V_{GS}=2.5V, I_D=0.55A$		320	450		
		$V_{GS}=1.8V, I_D=0.55A$		420	800		
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=0.4A$		1.0		S	
Diode Forward Voltage	V_{SD}	$I_S=0.15A, V_{GS}=0V$		0.8	1.2	V	
DYNAMIC							
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V, V_{DS}=0.6A$		1.2	1.5	nC	
Gate-Source Charge	Q_{gs}			0.2			
Gate-Drain Charge	Q_{gd}			0.3			
Turn-On Time	$T_{d(on)}$	$V_{DD}=10V, R_L=10\Omega, I_D=0.5A,$ $V_{GEN}=4.5V, R_G=6\Omega$		5	10	nS	
	t_r			8	15		
Turn-Off Time	$T_{d(off)}$				10		18
	t_f				1.2		2.8

KD1012

Dual N Channel Enhancement Mode MOSFET
0.65A

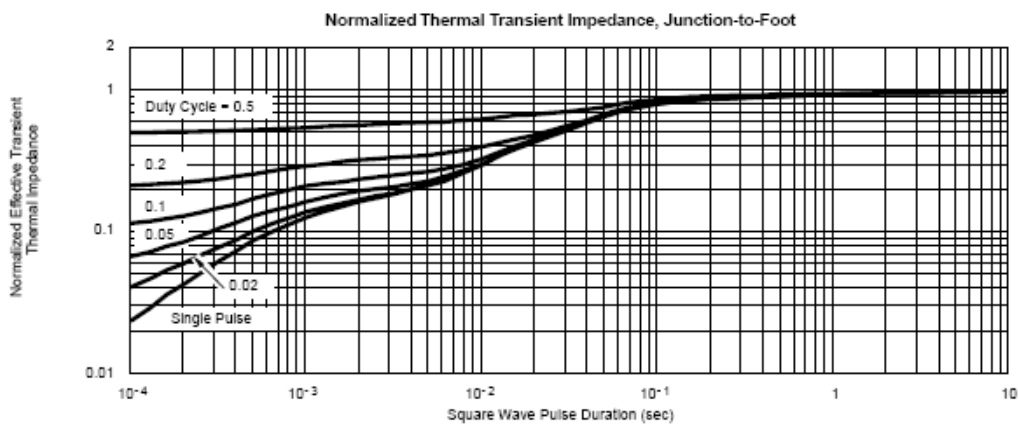
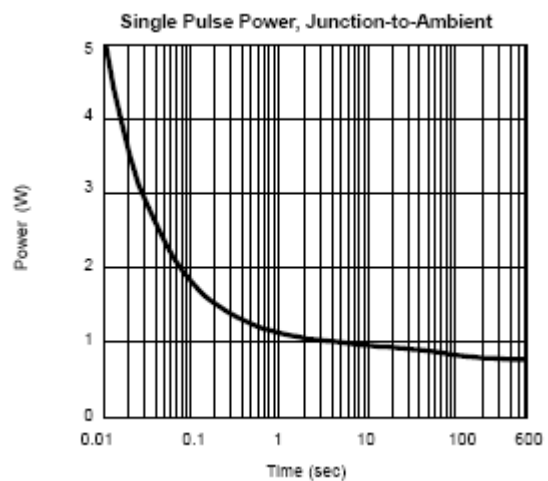
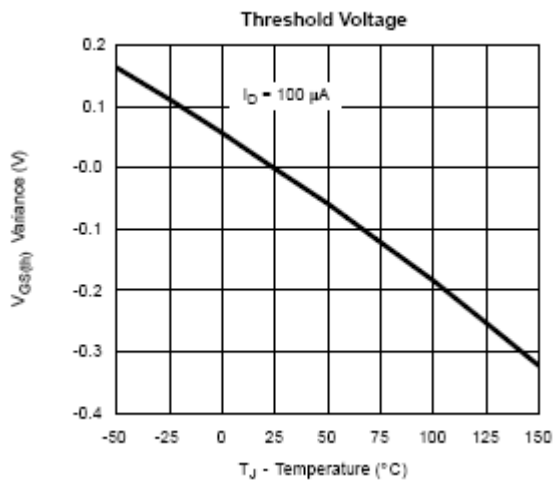
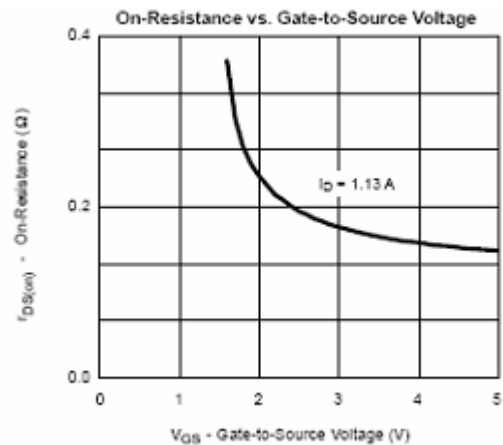
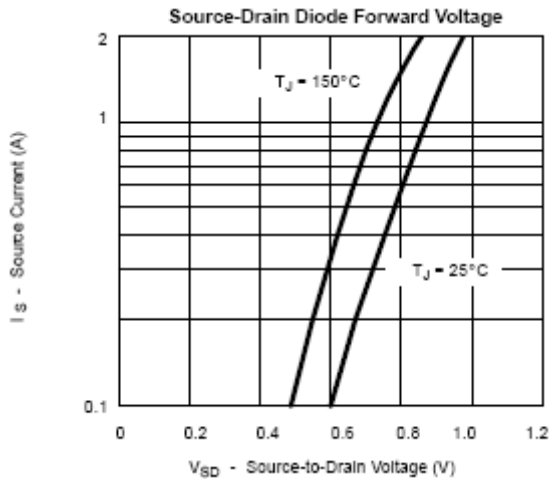
TYPICAL CHARACTERISTICS



KD1012

Dual N Channel Enhancement Mode MOSFET
0.65A

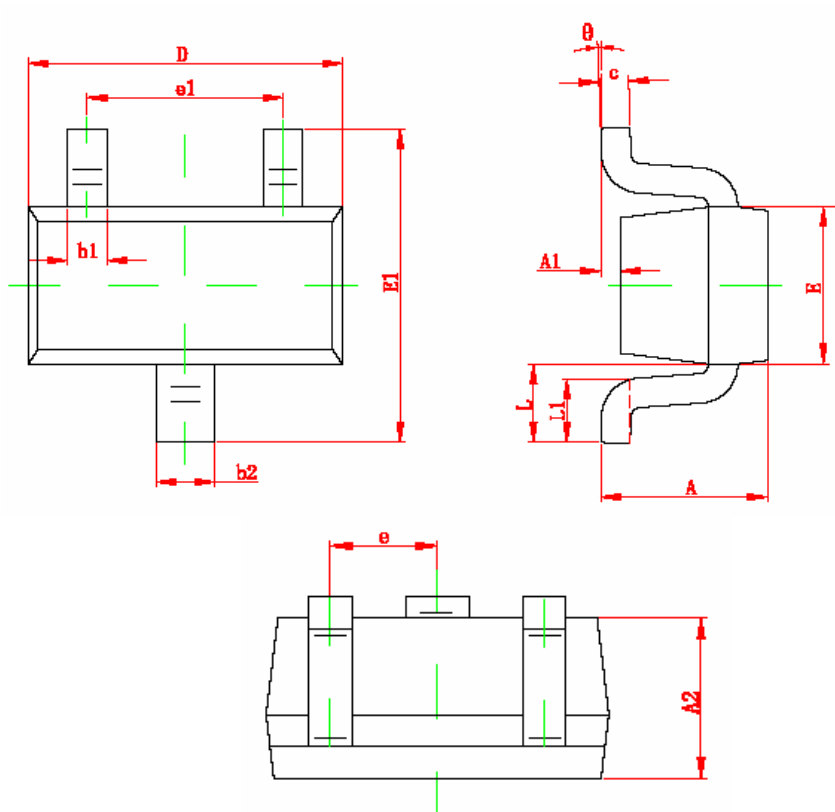
TYPICAL CHARACTERISTICS



KD1012

Dual N Channel Enhancement Mode MOSFET
0.65A

SOT523 (SC-89) PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.325	0.010	0.013
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.750	0.850	0.030	0.033
E1	1.450	1.750	0.057	0.069
e	0.500 TYP		0.020 TYP	
e1	0.900	1.100	0.035	0.043
L	0.550 REF		0.022 REF	
L1	0.280	0.440	0.011	0.017
theta	0°	4°	0°	4°