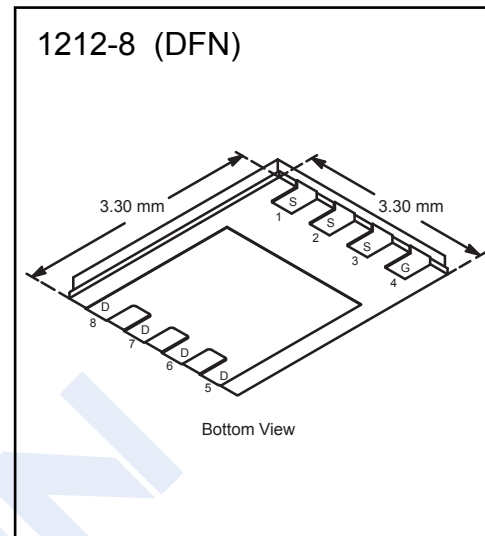
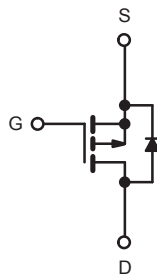


P-Channel MOSFET

SI7129DN (KI7129DN)

■ Features

- $V_{DS} (V) = -30V$
- $I_D = -35 A (V_{GS} = -10V)$
- $R_{DS(ON)} < 11.4m\Omega (V_{GS} = -10V)$
- $R_{DS(ON)} < 20m\Omega (V_{GS} = -4.5V)$



■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	$T_c = 25^\circ C$	-35
		$T_c = 70^\circ C$	-35
		$T_a = 25^\circ C$ (Note.1 and 2)	-14.4
		$T_a = 70^\circ C$ (Note.1 and 2)	-11.5
Pulsed Drain Current	I_{DM}	-60	A
Avalanche Current	I_{AS}	-25	A
Single-Pulse Avalanche Energy	E_{AS}	31.25	mJ
Power Dissipation	P_D	$T_c = 25^\circ C$	52.1
		$T_c = 70^\circ C$	3.3
		$T_a = 25^\circ C$ (Note.1 and 2)	3.8
		$T_a = 70^\circ C$ (Note.1 and 2)	2.4
Thermal Resistance.Junction- to-Ambient	R_{thJA}	33	$^\circ C/W$
Thermal Resistance.Junction- to-Case	R_{thJC}	2.4	$^\circ C/W$
Junction Temperature	T_J	150	$^\circ C$
Junction Storage Temperature Range	T_{stg}	-55 to 150	$^\circ C$

Note.1: Surface mounted on 1" x 1" FR4 board.

Note.2: $t = 10$ s.

P-Channel MOSFET

SI7129DN (KI7129DN)

■ Electrical Characteristics Ta = 25°C

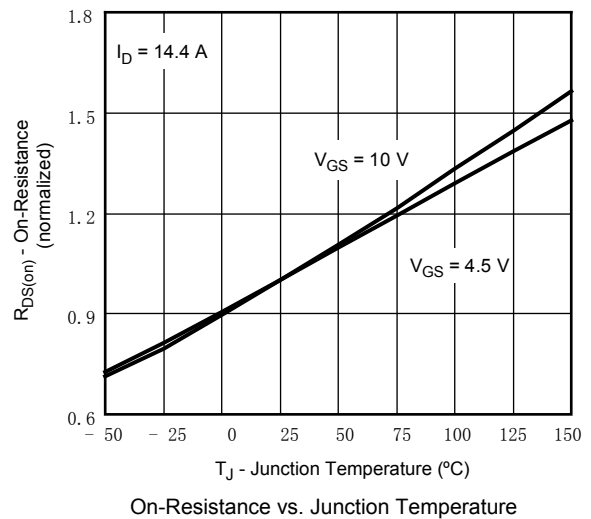
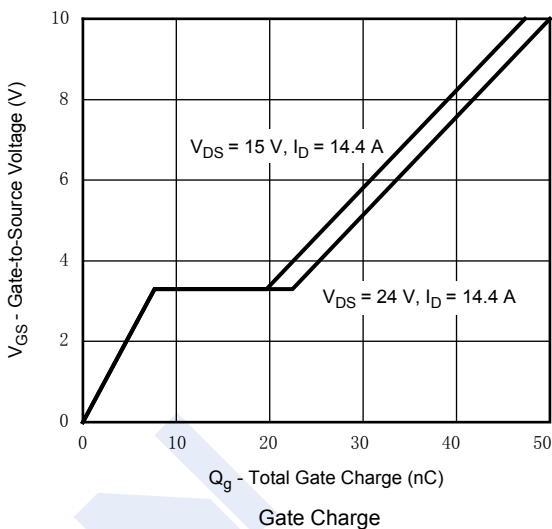
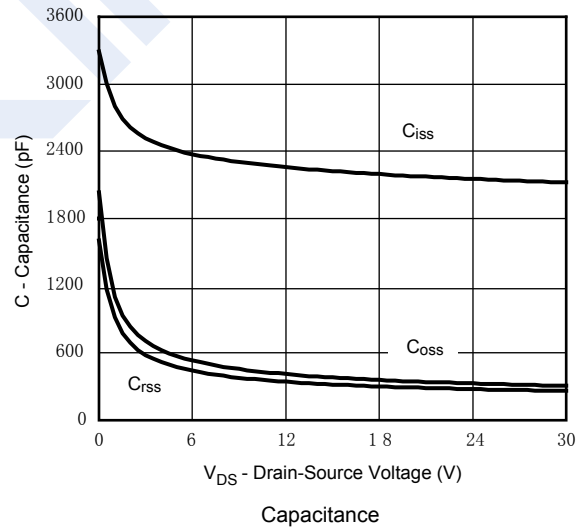
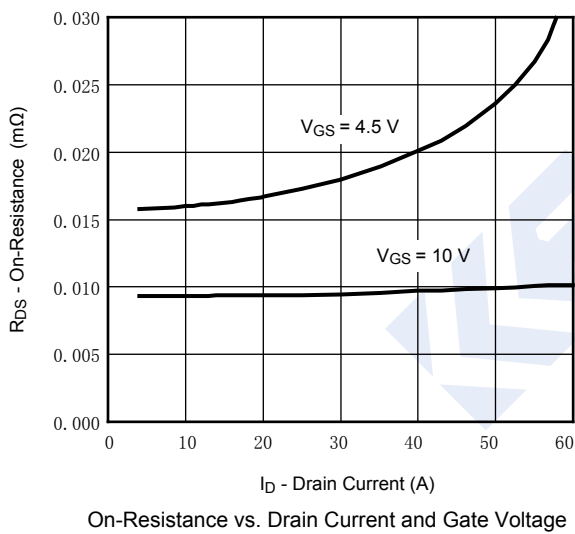
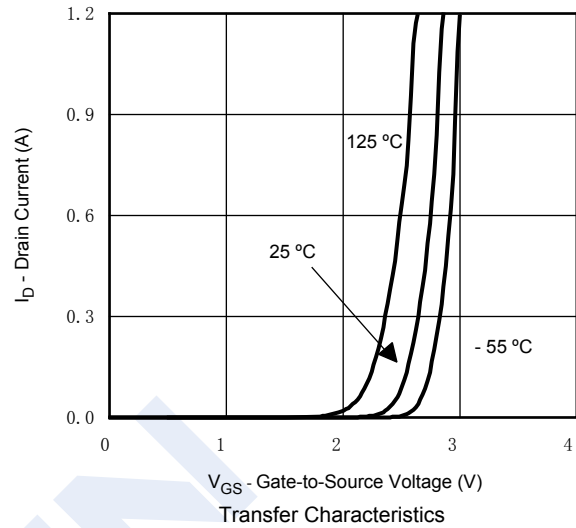
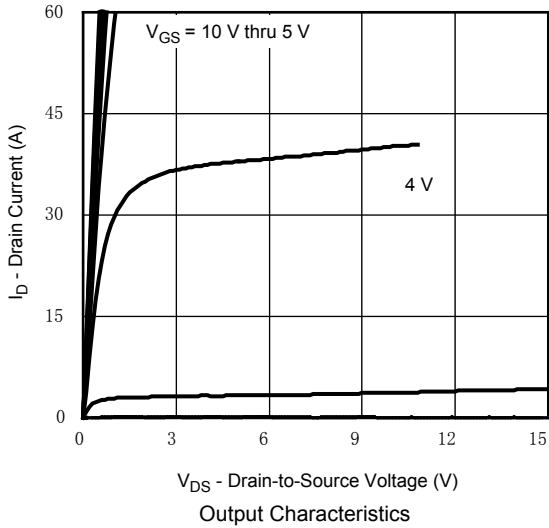
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =-250 μA, V _{GS} =0V	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V			-1	μA
		V _{DS} =-30V, V _{GS} =0V, T _J =55°C			-10	
Gate-Body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250 μA	-1.5		-2.8	V
Static Drain-Source On-Resistance (Note.1)	R _{DS(on)}	V _{GS} =-10V, I _D =-14.4A		9.5	11.4	mΩ
		V _{GS} =-4.5V, I _D =-11.5A		16	20	
On state drain current (Note.1)	I _{D(ON)}	V _{GS} =-10V, V _{DS} =-5V	-20			A
Forward Transconductance (Note.1)	g _{FS}	V _{DS} =-15V, I _D =-14.4A		37		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-15V, f=1MHz		2230	3345	pF
Output Capacitance	C _{oss}			385	578	
Reverse Transfer Capacitance	C _{rss}			322		
Gate resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz	0.4	1.8	3.6	Ω
Total Gate Charge	Q _g	V _{GS} =-10V, V _{DS} =-15V, I _D =-14.4A		47.5	71	nC
				24.6	37	
Gate Source Charge	Q _{gs}	V _{GS} =-4.5V, V _{DS} =-15V, I _D =-14.4A		7.7		
Gate Drain Charge	Q _{gd}			12		
Turn-On DelayTime	t _{d(on)}	V _{GS} =-4.5V, V _{DS} =-15V, R _L =1.5Ω, R _G =1Ω, I _D =-10A		50	75	ns
Turn-On Rise Time	t _r			43	65	
Turn-Off DelayTime	t _{d(off)}			30	45	
Turn-Off Fall Time	t _f			14	21	
Turn-On DelayTime	t _{d(on)}	V _{GS} =-10V, V _{DS} =-15V, R _L =1.5Ω, R _G =1Ω, I _D =-10A		14	21	
Turn-On Rise Time	t _r			9	18	
Turn-Off DelayTime	t _{d(off)}			36	54	
Turn-Off Fall Time	t _f			10	20	
Body Diode Reverse Recovery Time	t _{rr}	I _F =-10A, di/dt=100A/μs, T _J =25°C		34	47	nC
Body Diode Reverse Recovery Charge	Q _{rr}			30	45	
Reverse Recovery Fall Time	t _a			15		ns
Reverse Recovery Rise Time	t _b			16		
Maximum Body-Diode Continuous Current	I _S	T _c =25°C			-35	A
Pulse Diode Forward Currenta (Note.1)	I _{SM}				-60	
Diode Forward Voltage	V _{SD}	I _F =-10A		-0.8	-1.2	V

Note.1: Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2 %.

P-Channel MOSFET

SI7129DN (KI7129DN)

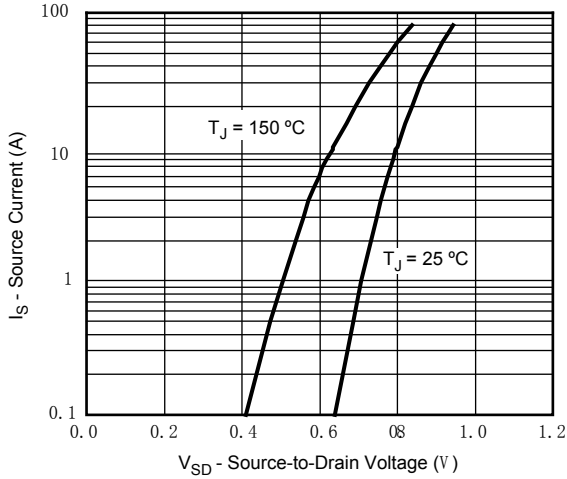
■ Typical Characteristics



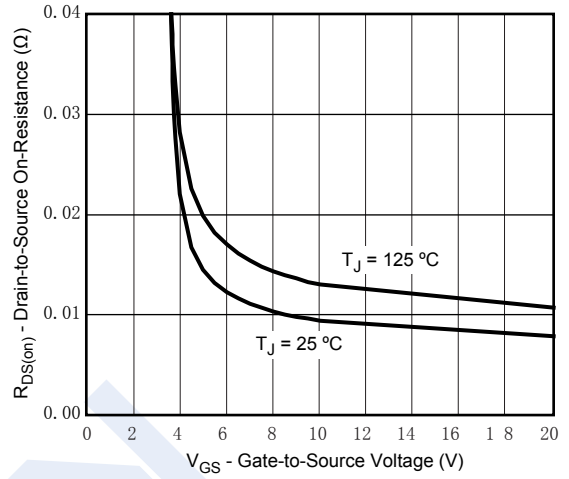
P-Channel MOSFET

SI7129DN (KI7129DN)

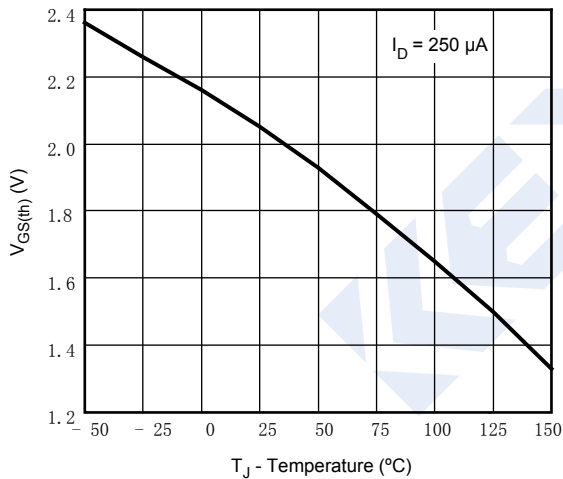
■ Typical Characteristics



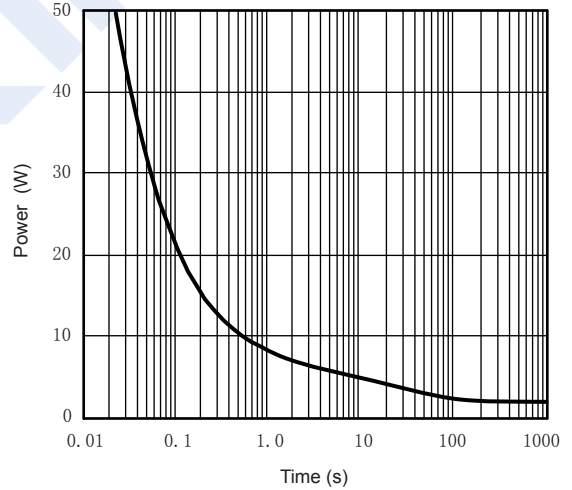
Source-Drain Diode Forward Voltage



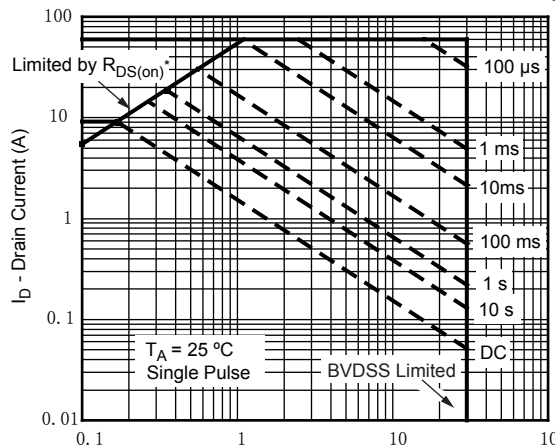
On-Resistance vs. Gate-to-Source Voltage



T_J - Temperature ($^\circ\text{C}$)



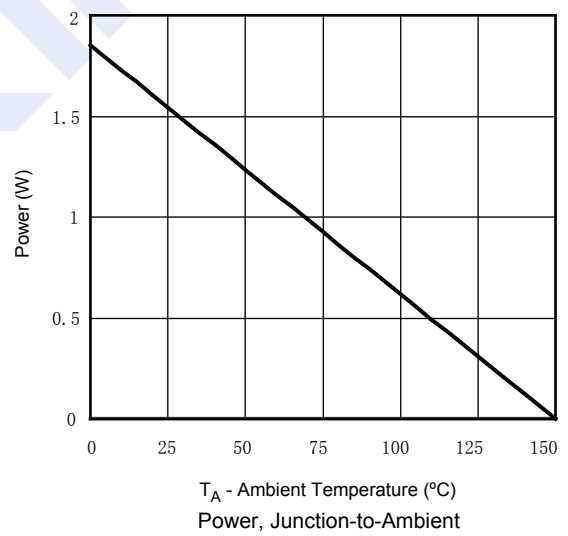
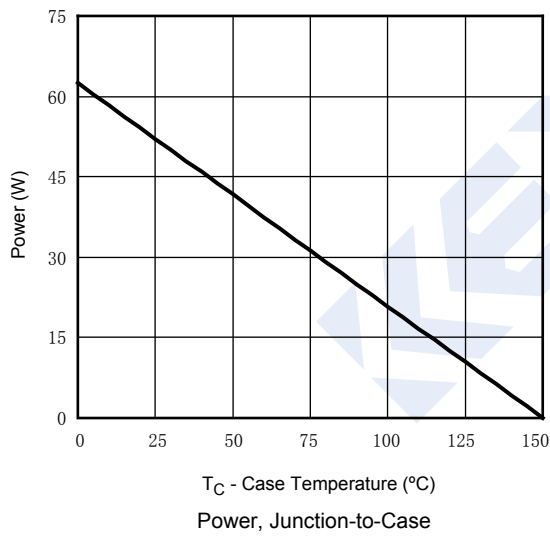
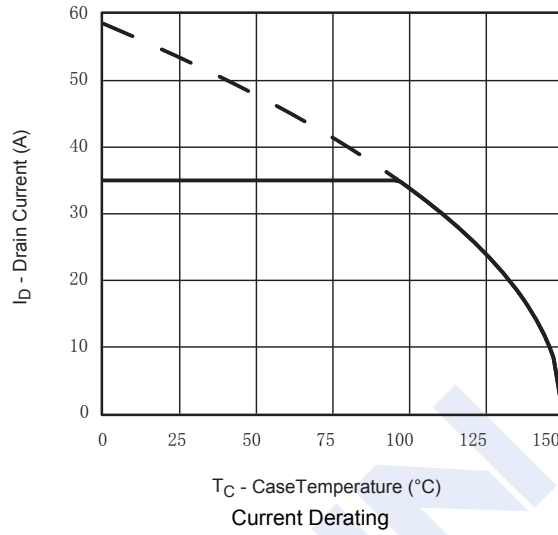
Single Pulse Power, Junction-to-Ambient



V_{DS} - Drain-to-Source Voltage (V)
 * $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is Specified
 Safe Operating Area, Junction-to-Ambient

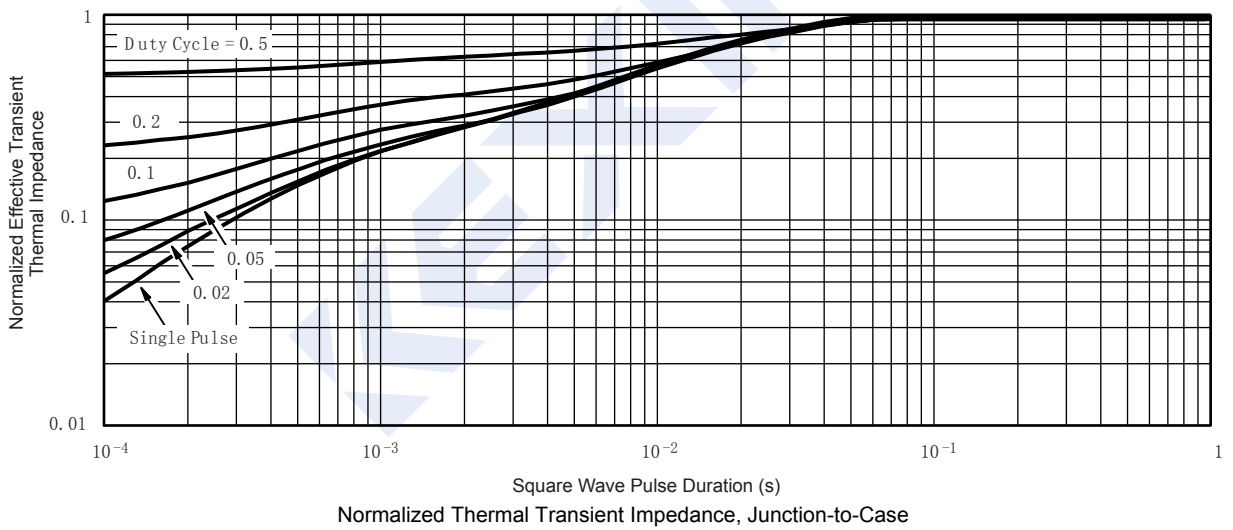
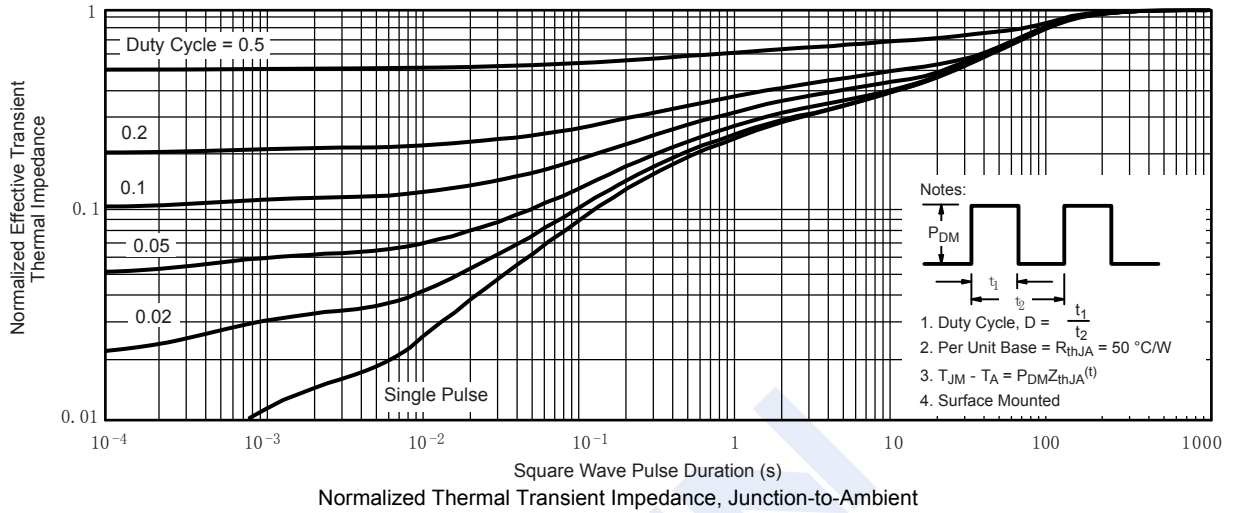
P-Channel MOSFET SI7129DN (KI7129DN)

■ Typical Characteristics

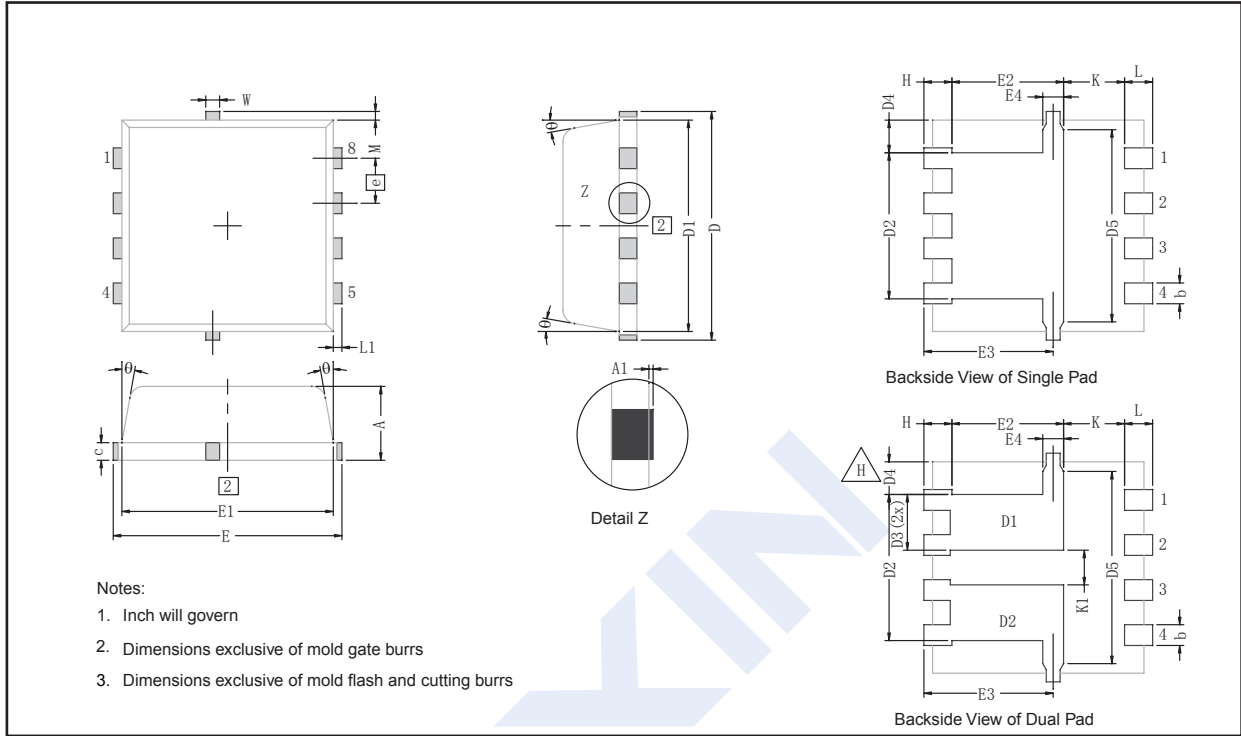


P-Channel MOSFET SI7129DN (KI7129DN)

■ Typical Characteristics



PowerPAK[®] 1212-8 (DFN), SINGLE/DUAL



DIM.	M ILLIMETERS			NCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.97	1.04	1.12	0.038	0.041	0.044
A1	0.00	-	0.05	0.000	-	0.002
b	0.23	0.30	0.41	0.009	0.012	0.016
c	0.23	0.28	0.33	0.009	0.011	0.013
D	3.20	3.30	3.40	0.126	0.130	0.134
D1	2.95	3.05	3.15	0.116	0.120	0.124
D2	1.98	2.11	2.24	0.078	0.083	0.088
D3	0.48	-	0.89	0.019	-	0.035
D4	0.47 TYP.			0.0185 TYP.		
D5	2.3 TYP.			0.090 TYP.		
E	3.20	3.30	3.40	0.126	0.130	0.134
E1	2.95	3.05	3.15	0.116	0.120	0.124
E2	1.47	1.60	1.73	0.058	0.063	0.068
E3	1.75	1.85	1.98	0.069	0.073	0.078
E4	0.34 TYP.			0.013 TYP.		
e	0.65 BSC			0.026 BSC		
K	0.86 TYP.			0.034 TYP.		
K1	0.35	-	-	0.014	-	-
H	0.30	0.41	0.51	0.012	0.016	0.020
L	0.30	0.43	0.56	0.012	0.017	0.022
L1	0.06	0.13	0.20	0.002	0.005	0.008
θ	0°	-	12°	0°	-	12°
W	0.15	0.25	0.36	0.006	0.010	0.014
M	0.125 TYP.			0.005 TYP.		

PowerPAK[®] 1212-8 (DFN), SINGLE/DUAL

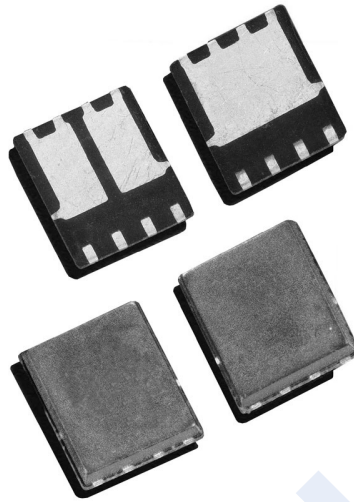
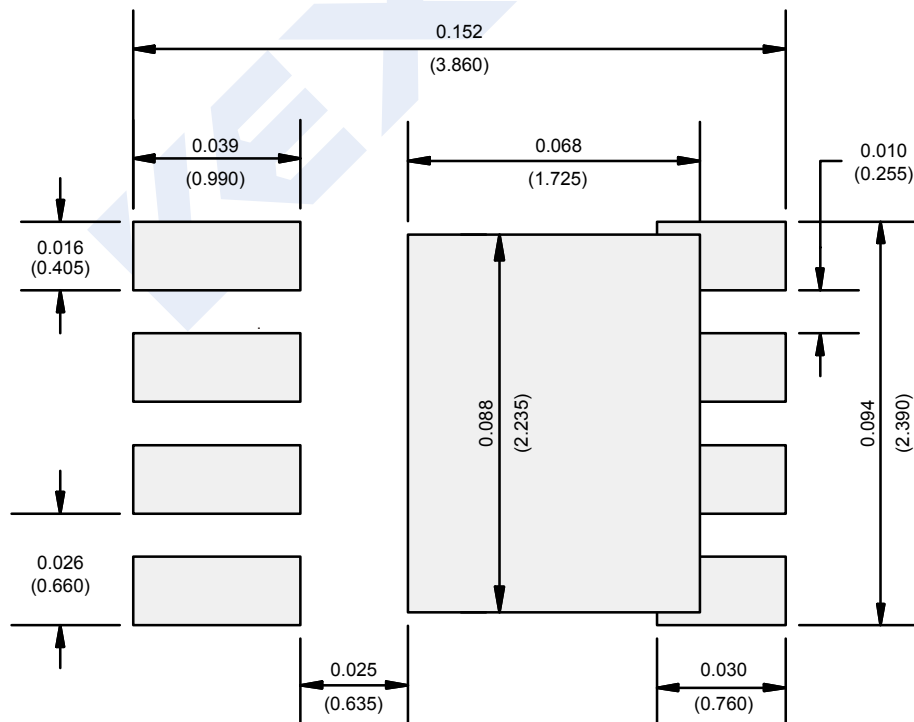


Figure 1. PowerPAK 1212 (DFN) Devices

RECOMMENDED MINIMUM PADS FOR PowerPAK[®] 1212-8 (DFN) Single



Recommended Minimum Pads
Dimensions in Inches/(mm)