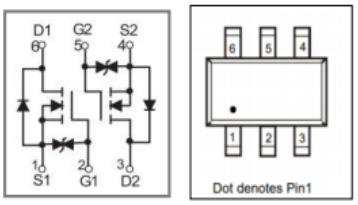
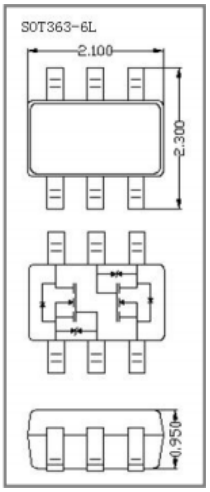
N-Channel MOSFET

- ◇ Epoxy meets UL 94 V-0 flammability rating
- ◇ High density cell design for low $R_{DS(ON)}$
- ◇ Voltage controlled small signal switch
- ◇ High Saturation Current Capability
- ◇ ESD Protected

Circuit and Pin Schematic





Device Marking Code	
2N7002KDW	K27

Maximum Ratings (Ta = 25 ℃)

Symbol	Parameter	Value	Units
V_{DS}	Drain-source Voltage	60	V
V_{GS}	Gate-source-Voltage	±20	V
I_D	Drain Current	340	mA
Pd	Total Power Dissipation	150.	mW
T_J	Junction Temperature	150	℃
$T_{STG.}$	Storage Temperature	-55 to 150	℃
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	820	℃/W

ELECTRICAL CHARACTERISTICS (Ta = 25 ℃)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
$V_{(BR)Dss}$	Drain-source Breakdown Voltage	V_{GS} =0V,I_D = 250 uA	60			V
$V_{GS(th)}$	Gate-Threshold Voltage (note 1)	V_{DS}=V_{GS}, I_D= 1mA	1.0		2.5	V
I_{GSS}	Gate-body Leakage	V_{DS}=0V, V_{GS} =±20V			±10	uA
Id_{SS}	Zero Gate Voltage Drain Current	V_{DS}=48V, V_{GS}=0V			1	uA
Rdson	Drain-source On-resistance (note 1)	V_{GS}=4.5V, I_D=200mA V_{GS}=10V, I_D=500mA			5.3 5.0	Ω
Vsd	Diode Forward Voltage (note 1)	V_{GS}=0V, I_S= 300mA			1.5	V
Qr	Recovered charge	V_{GS}=0V, I_S= 300mA V_R=25V,dIs/dt=-100A/μS		30		nC

Dynamic Characteristics

Ciss	Input Capacitance	V_{DS}=10V			40	pF
Coss	Output Capacitance	V_{GS}=0V			30	
Crss	Reverse Transfer Capacitance	F=1MHz			10	

Switching Characterisics

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Td(on)	Turn on delay time	V_{DD}=50V,V_{GS}=10V,R_L=250Ω			10	ns
Td(off)	Turn off delay time	R_{GS}=50Ω ,R_{GEN}=50Ω			15	
trr	Reverse recovery time	V_{GS}=0V, I_S=300mA,V_R=25V Dls/dt=-100A/us		30		

Gate - Source Zener Diode

BV_{GSO}	Gate-Source Breakdown Voltage	I_{GS}=±1mA(Open Drain)	±21.5		±30	V

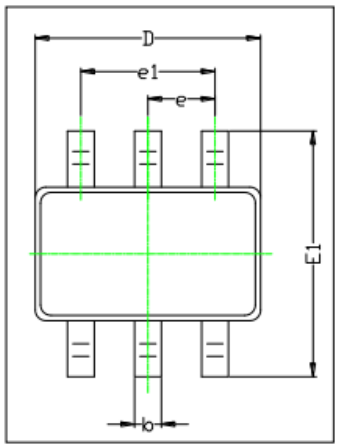
Note:

1. **Pulse Test : Pulse width ≤300μS,duty cycle ≤2%.**

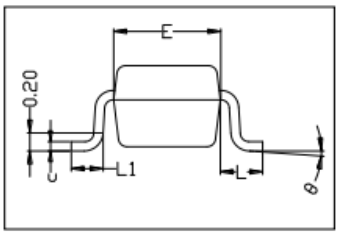
Package Dimensions

Package outline : SOT363-6L

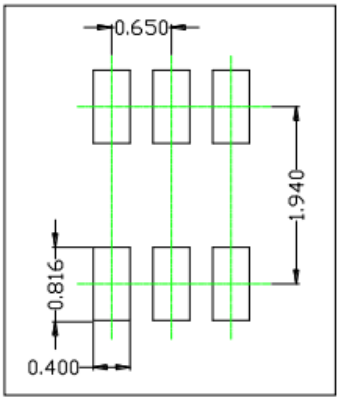
TOP VIEW



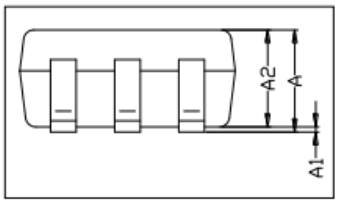
SIDE VIEW



SOLDRING PATTERN



FRONT VIEW



SYMBOL	DIMENSIONS IN MILLIMETER	
	MIN	MAX
A	0.900	1.000
A1	0.000	0.100
A2	0.900	1.000
b	0.150	0.350
c	0.100	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.400
e	0.650 TYP.	
e1	1.200	1.400
L	0.525 REF.	
L1	0.260	0.460
θ	0°	8°

Notice:

1.Lead plating: Pb free solder
2.Lead thickness includes solder plating
3.Lead frame: CAC-5
4.Other Tolerance: ±0.05
6. Dimensions are exclusive of Burrs,Mold Flash and Tie Bar extrusions
5.Unit: mm

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