IceMOS Technology

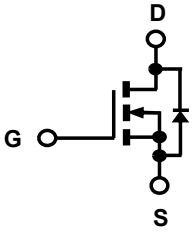
Preliminary
ICEK900GL10H3

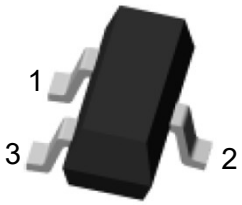
ICEK900GL10H3 N-Channel Enhancement Mode MOSFET

Product Summary			
I_D	T_A=25°C	2.93A	Max
$V_{(BR)DSS}$	I_D=250uA	100V	Min
$r_{DS(on)}$	V_{GS}=10V	70mΩ	Typ
Q_g	V_{DS}=50V	5.4nC	Typ

Features

- Low $r_{DS(on)}$
- Superior switching performance
- Optimized design for Motor Drivers and DC-DC Converter





SOT-23-3L

1=Gate, 2=Drain, 3=Source.

RoHS COMPLIANT RoHS (EU) 2015/863 CE HALOGEN FREE Pb Lead Free

Maximum ratings [a] at T_A=25°C, unless otherwise specified

Parameter	*Symbol*	*Conditions*	*Value*	*Unit*
Continuous drain current [b]	I_D	T_A=25°C	2.93	A
		T_A=100°C	1.85	
Pulsed drain current [b]	$I_{D, pulse}$	T_A=25°C	12	A
Avalanche energy, single pulse	E_{AS}	L=0.5mH, V_{DD}=50V, I_D=5.5A, R_G=25Ω	7.5	mJ
Avalanche current, repetitive [b]	I_{AR}	limited by $T_j$max	5.5	A
Gate source voltage	V_{GS}	Static	±20	V
		AC (f>1Hz)		
Power dissipation	P_{tot}	T_A=25°C	1.3	W
Operating and storage temperature	T_j, T_{stg}		-55 to +150	°C

a Preliminary data sheet - Specifications subject to change.
b limited by Tj_{max}
c when mounted on 1-inch square 2oz copper-clad FR-4

Parameter	Symbol	Conditions	Values			Unit
			Min	Typ	Max	
Thermal characteristics						
Thermal resistance, junction-ambient [c]	R_{thJA}	leaded	-	-	95	°C/W
Soldering temperature, wave soldering only allowed at leads	T_{sold}	1.6mm (0.063in.) from case for 10 s	-	-	260	°C

Electrical characteristics at T_j=25°C, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	100	-	-	V
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1	2	3	
Zero gate voltage drain current	I_{DSS}	V_{DS}=100V, V_{GS}=0V	-	-	1	μA
Gate source leakage current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Drain-source on-state resistance	$R_{DS\ (on)}$	V_{GS}=10V, I_D=1A	-	70	90	mΩ
Gate resistance	R_G	f=1 MHz, open drain	-	1.1	-	Ω
Dynamic characteristics						
Input capacitance	C_{iss}	V_{DS}=50V, V_{GS}=0V, f=1 MHz	-	230	-	pF
Output capacitance	C_{oss}		-	70	-	
Reverse transfer capacitance	C_{rss}		-	8	-	
Turn-on delay time	$t_{d(on)}$	V_{DS}=15V, R_L=7.5Ω, V_{GS}=10V, R_G=6.8Ω (External)	-	3	-	ns
Rise time	t_r		-	16.5	-	
Turn-off delay time	$t_{d(off)}$		-	7.5	-	
Fall time	t_f		-	3.5	-	

Parameter	Symbol	Conditions	Values			Unit
			Min	Typ	Max	
Gate charge characteristics						
Gate to source charge	Q_{gs}	V_{DS}=50V, I_D=2A, V_{GS}=0 to 10V	-	0.8	-	nC
Gate to drain charge	Q_{gd}		-	1.1	-	
Gate charge total	Q_g		-	5.4	-	
Reverse Diode						
Continuous forward current	I_S	V_{GS}=0V	-	-	2.93	A
Diode forward voltage	V_{SD}	V_{GS}=0V, I_S=1A	-	0.82	-	V
Reverse recovery time	t_{rr}	V_{RR}=15V, I_S=2A, d_{iF}/d_t=100 A/µS	-	25	-	ns
Reverse recovery charge	Q_{rr}		-	13	-	nC
Peak reverse recovery current	I_{rm}		-	1	-	A

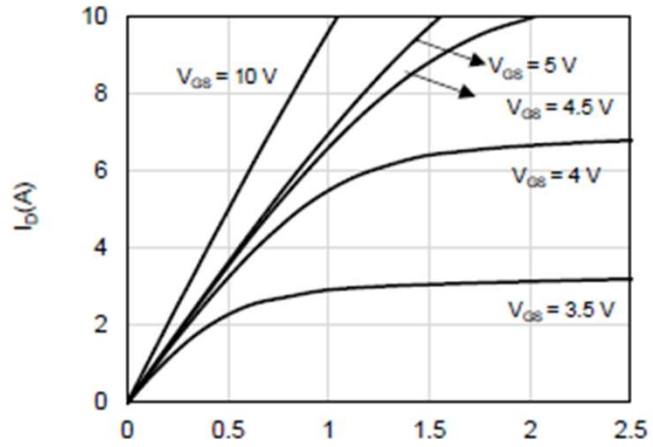


Figure 1: On-Region Characteristics

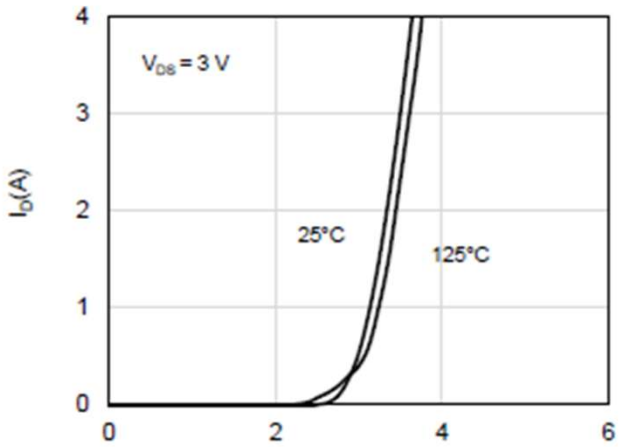


Figure 2: Transfer Characteristics

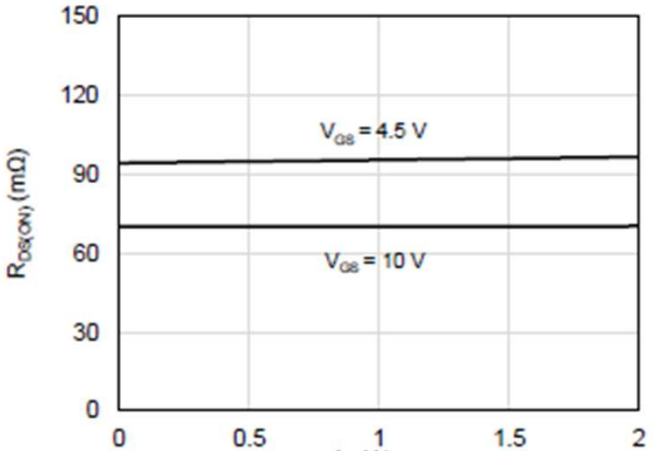


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

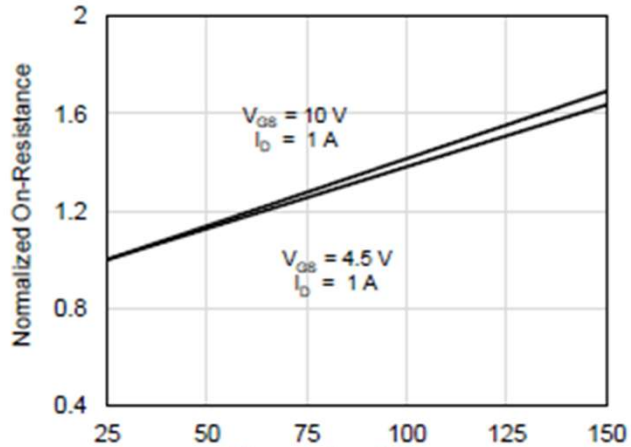


Figure 4: On-Resistance vs. Junction Temperature

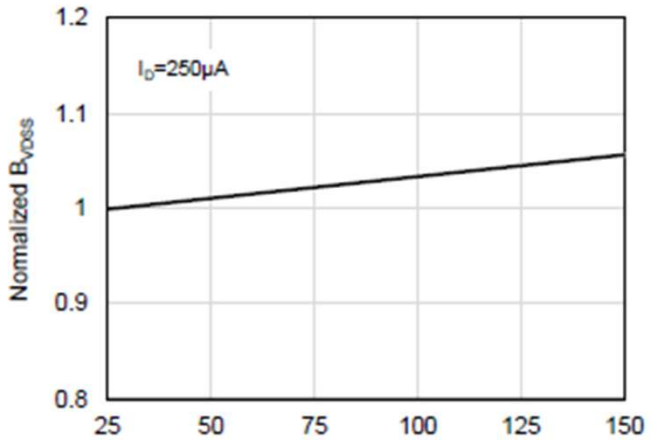


Figure 5: Breakdown Voltage vs. Junction Temperature

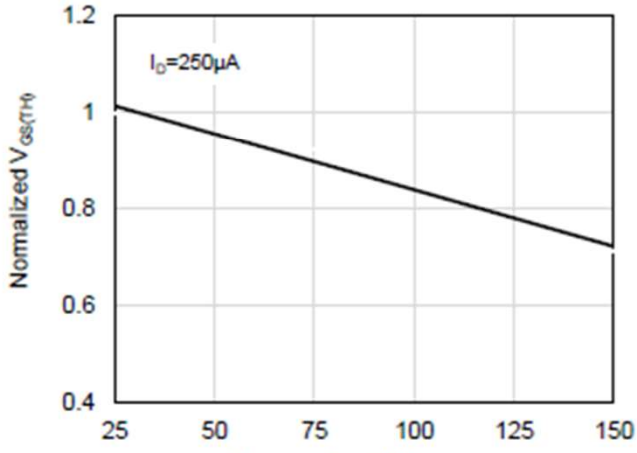


Figure 6: Threshold Voltage vs. Junction Temperature

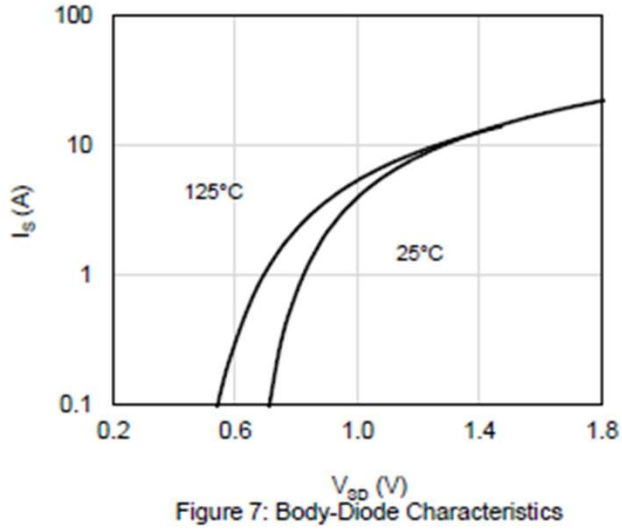


Figure 7: Body-Diode Characteristics

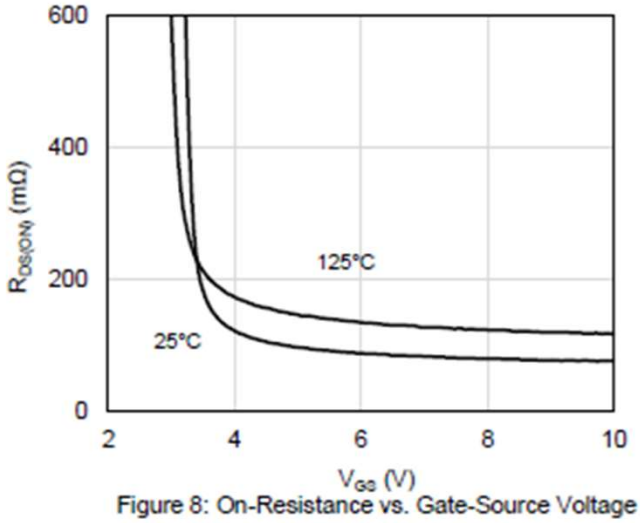


Figure 8: On-Resistance vs. Gate-Source Voltage

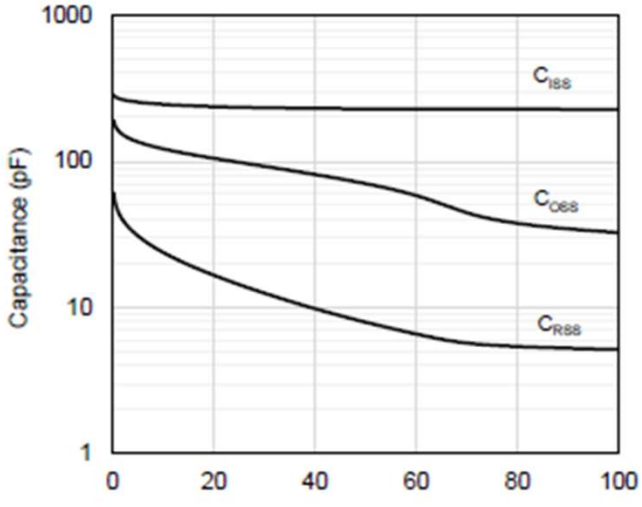


Figure 9: Capacitance Characteristics

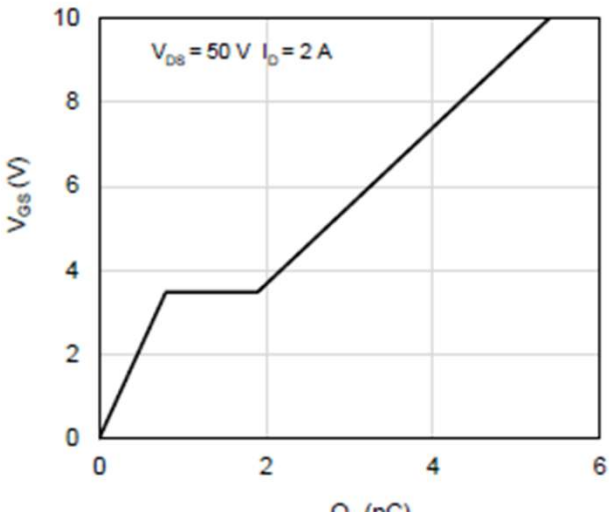


Figure 10: Gate-Charge Characteristics

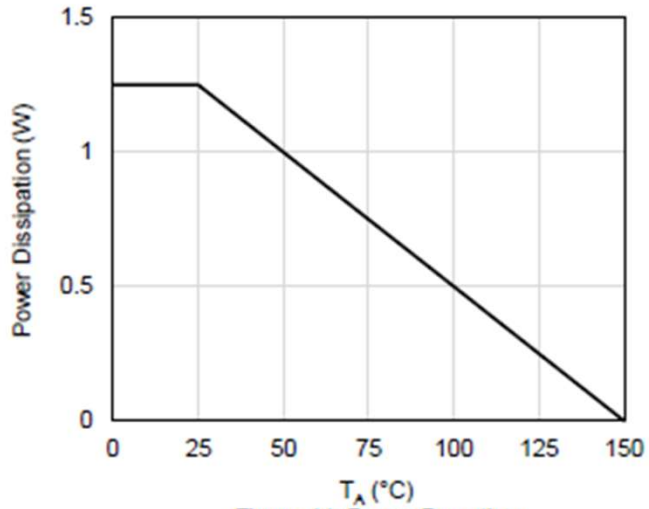


Figure 11: Power De-rating

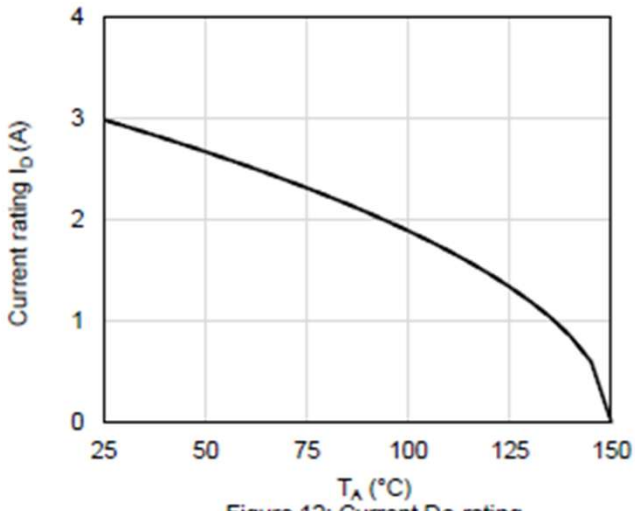


Figure 12: Current De-rating

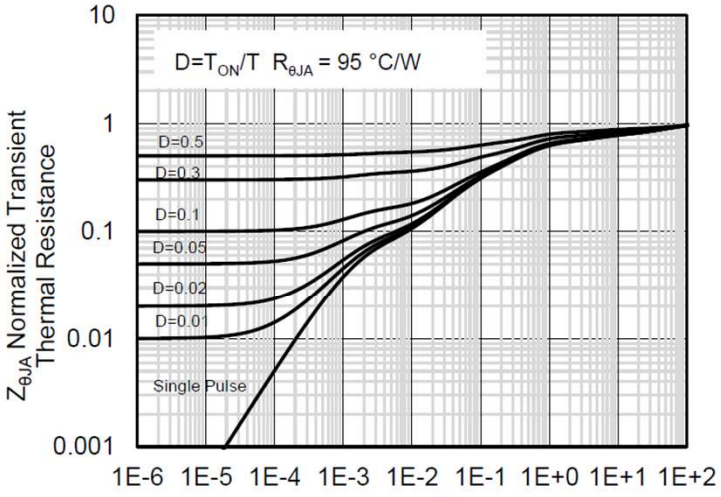


Figure 13: Normalized Maximum Transient Thermal Impedance

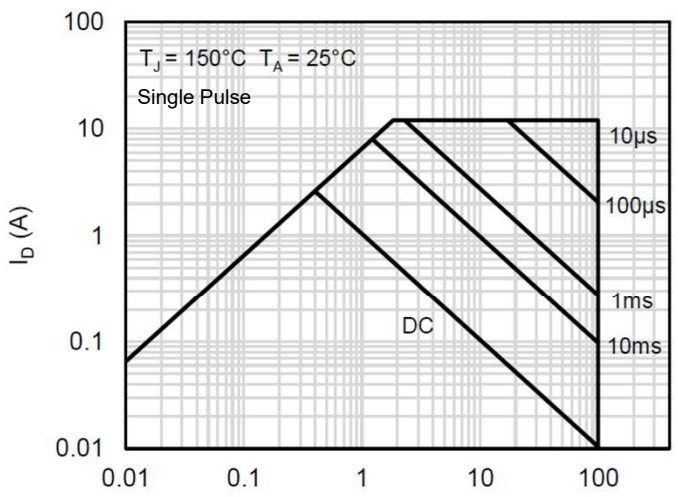
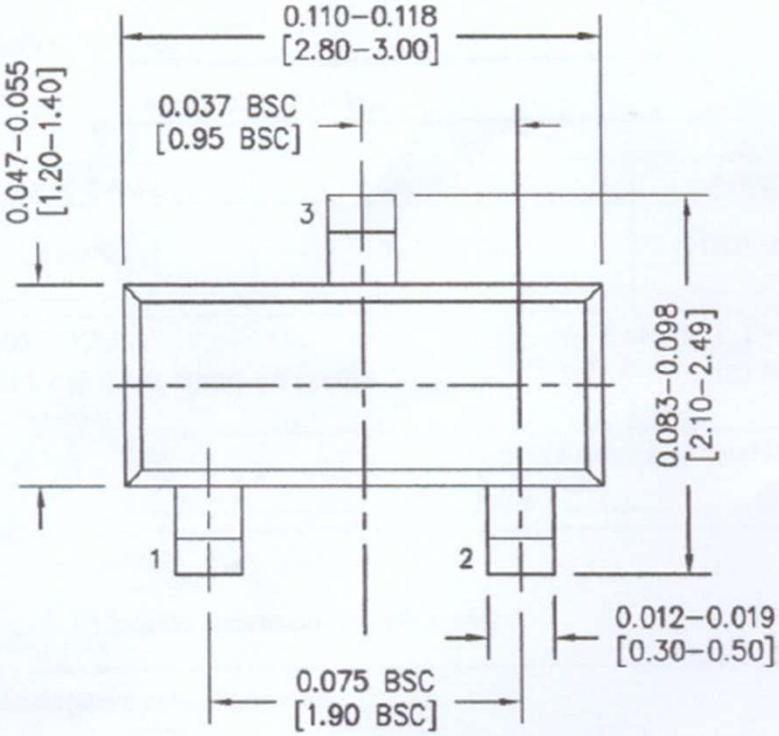
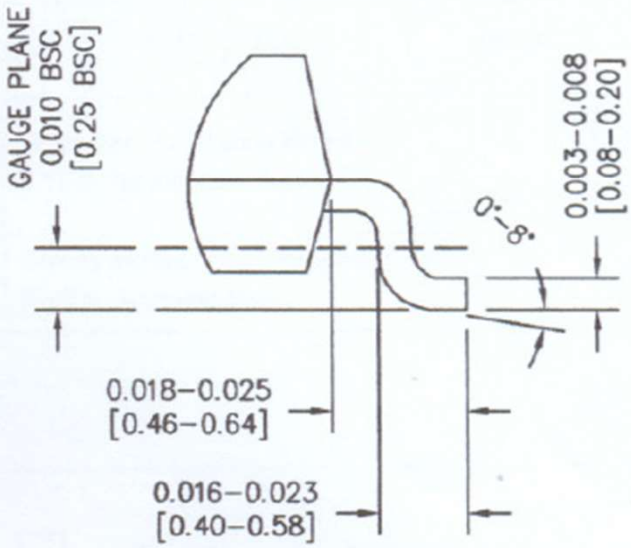


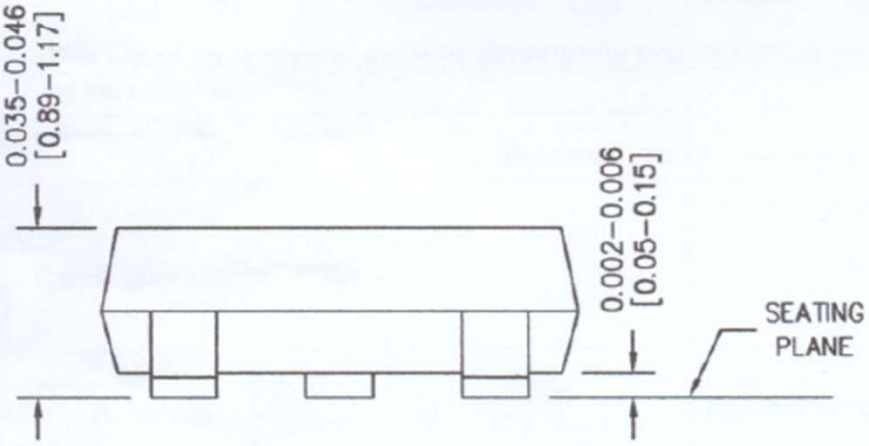
Figure 14: Maximum Forward Biased Safe Operating Area

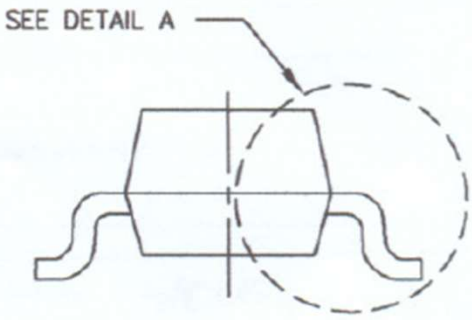
Package Outline: SOT-23-3L

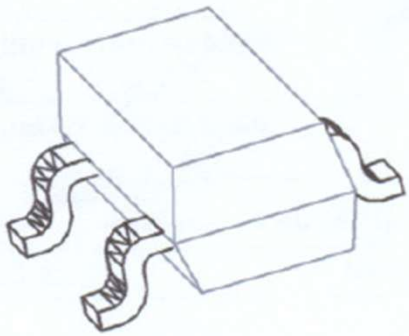




DETAIL A





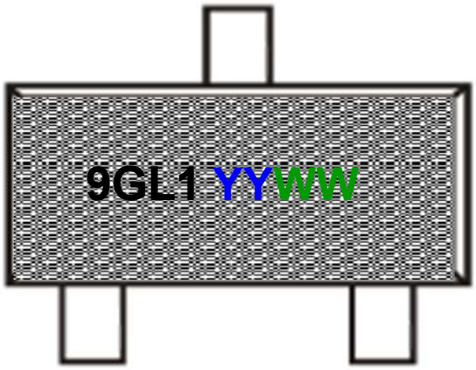


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Marking Information

YY = Last two digits of the year

WW = Work week



ICEK900GL10 = ICE is IceMOS logo and
9GL1 is a designated device part number

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