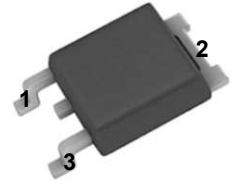
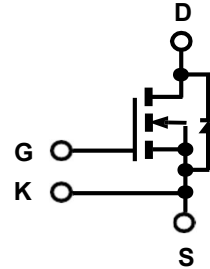


ICEK900GL10D N-Channel Enhancement Mode MOSFET

Features

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

Product Summary			
I_D	$T_A=25^\circ\text{C}$	10.3A	Max
$V_{(BR)DSS}$	$I_D=250\mu\text{A}$	100V	Min
$r_{DS(on)}$	$V_{GS}=10\text{V}$	65m Ω	Typ
Q_g	$V_{DS}=50\text{V}$	5.6nC	Typ



T0252

Standard Metal
Heatsink

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



Maximum ratings^a at $T_j=25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
Continuous drain current ^b	I_D	$T_c=25^\circ\text{C}$	10.3	A
		$T_c=100^\circ\text{C}$	6.5	
Pulsed drain current ^b	$I_{D, \text{pulse}}$	$T_c=25^\circ\text{C}$	40	A
Avalanche energy, single pulse	E_{AS}	$L=0.5\text{mH}$, $V_{DD}=50\text{V}$, $I_D=4\text{A}$, $R_G=50\Omega$	4	mJ
Avalanche current, repetitive ^b	I_{AR}	limited by $T_{j\text{max}}$	4	A
Gate source voltage	V_{GS}	Static	± 20	V
		AC ($f>1\text{Hz}$)		
Power dissipation	P_{tot}	$T_c=25^\circ\text{C}$	17.8	W
Operating and storage temperature	T_j, T_{stg}		-55 to +150	$^\circ\text{C}$

^a Preliminary data sheet - Specifications subject to change.

^b limited by $T_{j\text{max}}$

^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-case	R_{thJC}		-	-	7	°C/W
Thermal resistance, junction-ambient °	R_{thJA}	leaded	-	-	60	
Soldering temperature, wave soldering only allowed at leads	T_{sold}	1.6mm (0.063in.) from case for 10 s	-	-	260	°C

Electrical characteristics at $T_j=25^{\circ}\text{C}$, unless otherwise specified

Static characteristics

Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100	-	-	V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	2	3	
Zero gate voltage drain current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$	-	-	1	μA
Gate source leakage current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Drain-source on-state resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=5A$	-	65	90	m Ω
Gate resistance	R_G	$f=1\text{ MHz}$, open drain	-	1.5	-	Ω

Dynamic characteristics

Input capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, f=1\text{ MHz}$	-	235	-	pF
Output capacitance	C_{oss}		-	67	-	
Reverse transfer capacitance	C_{rss}		-	8	-	
Turn-on delay time	$t_{d(on)}$	$V_{DS}=50V, R_L=10\Omega, V_{GS}=10V, R_G=3.3\Omega$ (External)	-	3	-	ns
Rise time	t_r		-	2	-	
Turn-off delay time	$t_{d(off)}$		-	8	-	
Fall time	t_f		-	3	-	

Parameter	Symbol	Conditions	Values			Unit
			Min	Typ	Max	

Gate charge characteristics

Gate to source charge	Q_{gs}	$V_{DS}=50V, I_D=5A,$ $V_{GS}=0 \text{ to } 10V$	-	1.1	-	nC
Gate to drain charge	Q_{gd}		-	1.3	-	
Gate charge total	Q_g		-	5.6	-	

Reverse Diode

Continuous forward current	I_S	$V_{GS}=0V$	-	-	10.3	A
Diode forward voltage	V_{SD}	$V_{GS}=0V, I_S=1A$	-	0.82	-	V
Reverse recovery time	t_{rr}	$V_{RR}=25V, I_S=5A,$ $d_{iF}/d_t=100 \text{ A}/\mu\text{S}$	-	28	-	ns
Reverse recovery charge	Q_{rr}		-	18	-	nC
Peak reverse recovery current	I_{rm}		-	1.2	-	A

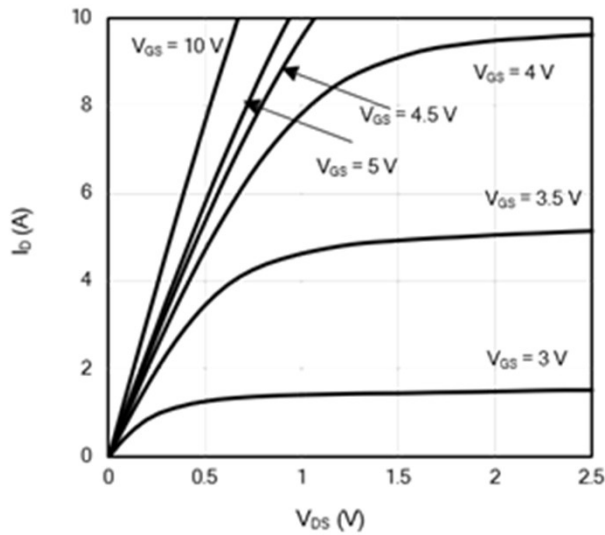


Figure 1: On-Region Characteristics

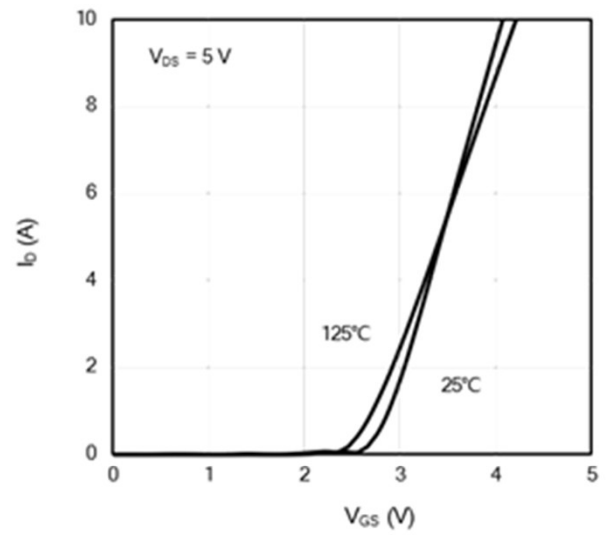


Figure 2: Transfer Characteristics

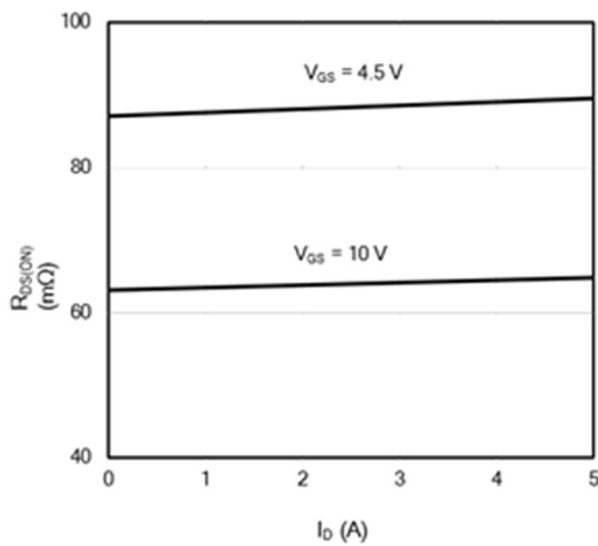


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

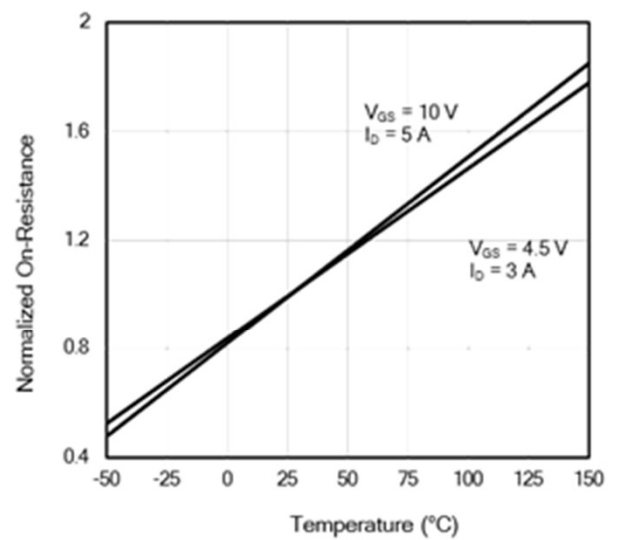


Figure 4: On-Resistance vs. Junction Temperature

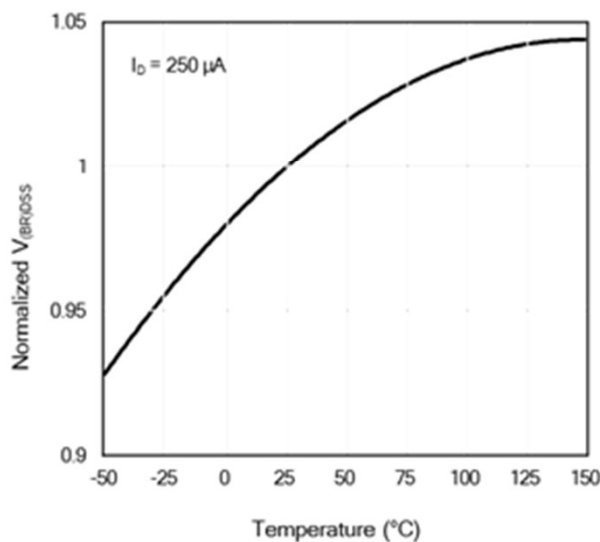


Figure 5: Breakdown Voltage vs. Junction Temperature

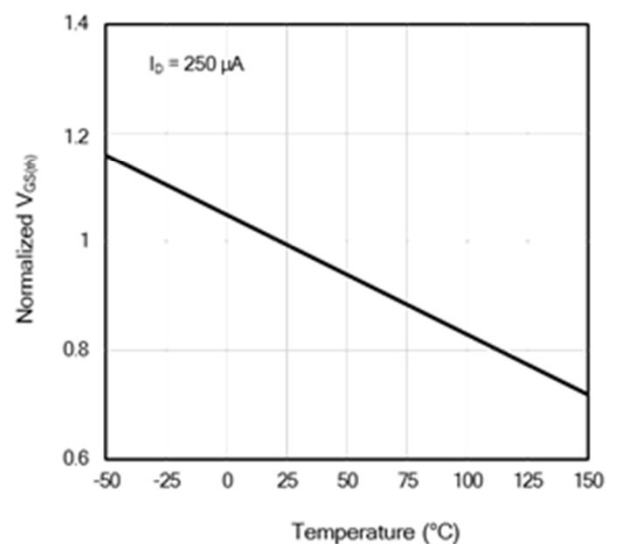


Figure 6: Threshold Voltage vs. Junction Temperature

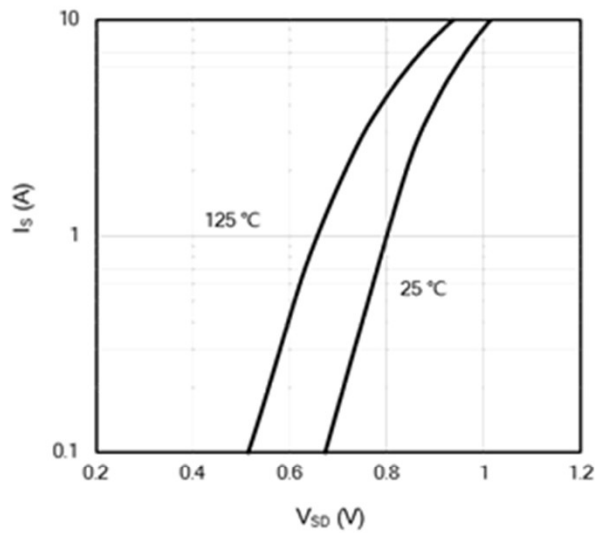


Figure 7: Body-Diode Characteristics

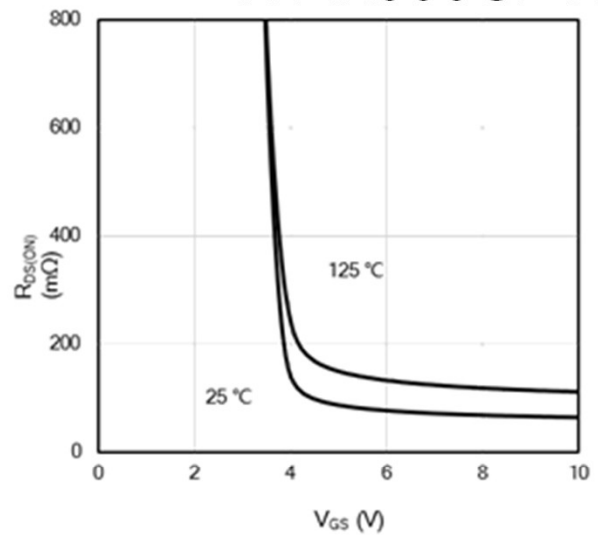


Figure 8: On-Resistance vs. Gate-Source Voltage

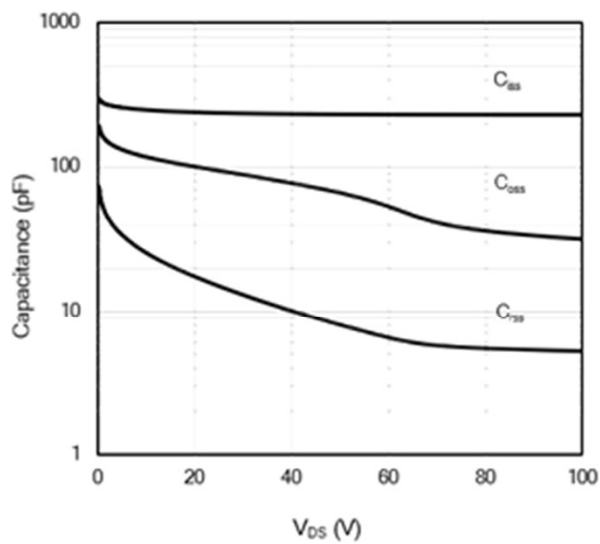


Figure 9: Capacitance Characteristics

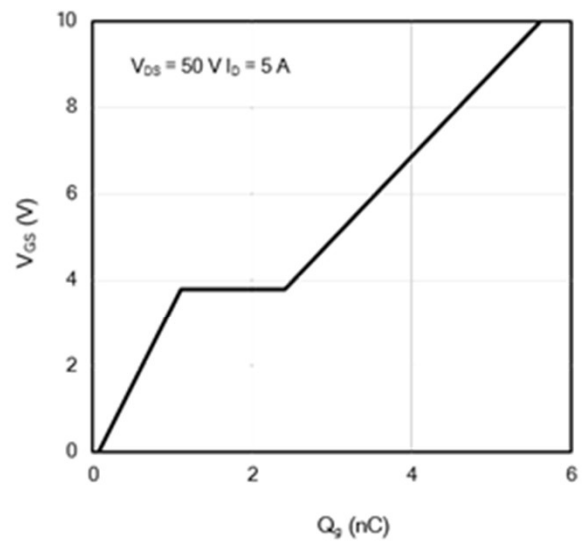


Figure 10: Gate-Charge Characteristics

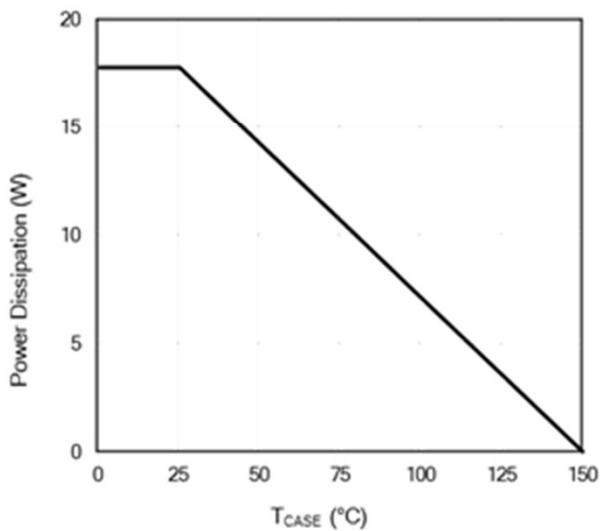


Figure 11: Power De-rating

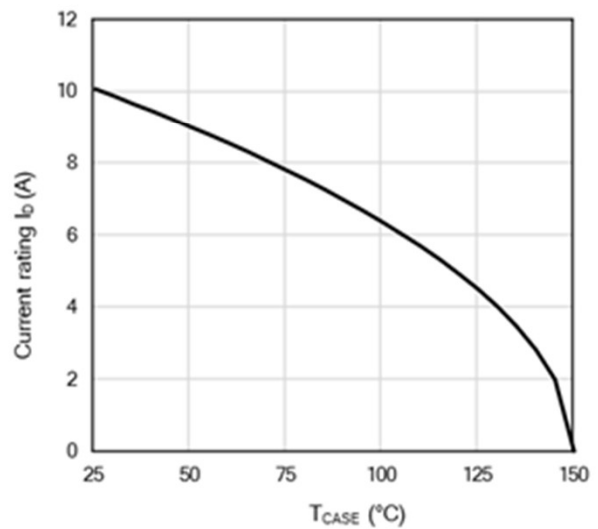


Figure 12: Current De-rating

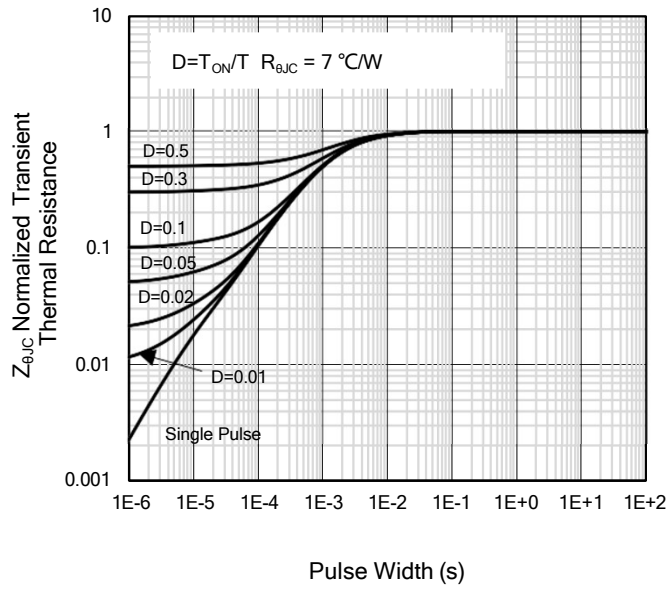


Figure 13: Normalized Maximum Transient Thermal Impedance

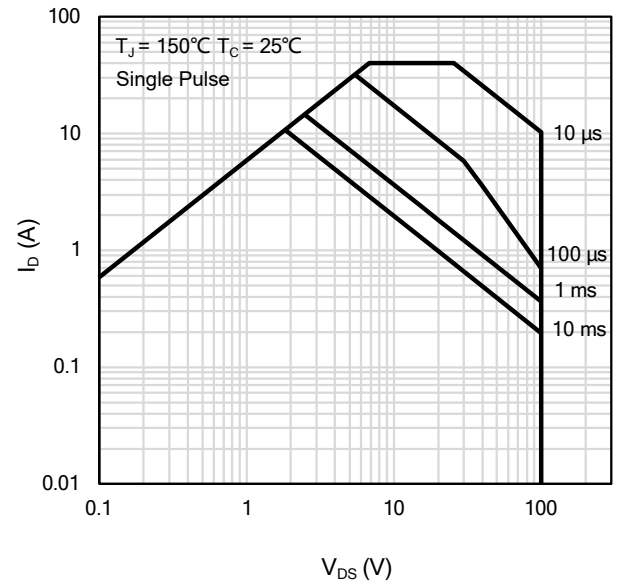
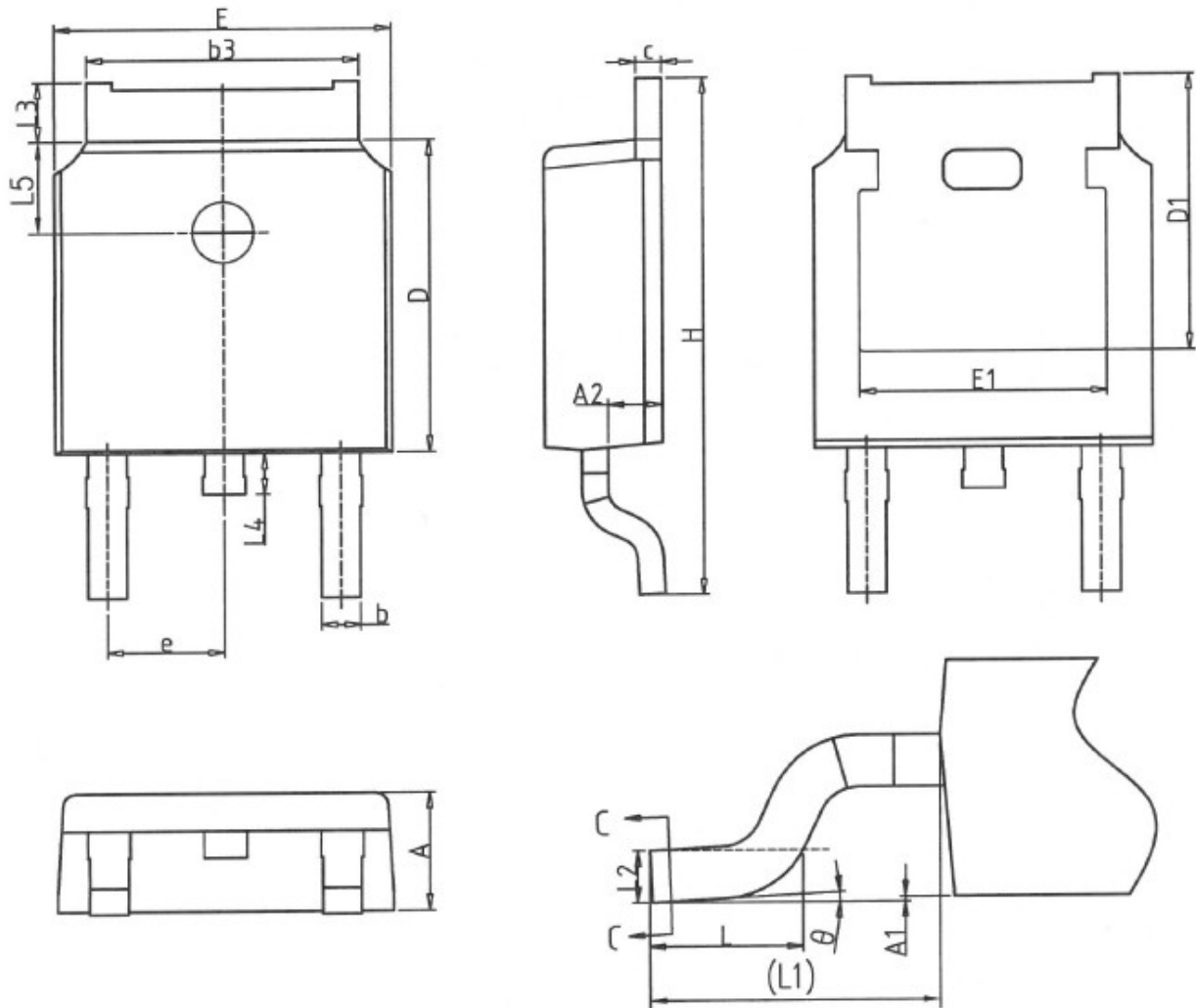


Figure 14: Maximum Forward Biased Safe Operating Area

Package Outline: TO252 (DPAK)



Package Outline: TO252 (DPAK)

SYMBOL	unit : mm		
	Min.	Nom.	Max
A	2.20	2.30	2.38
A1	0.00	-	0.20
A2	0.97	1.07	1.17
b	0.68	0.78	0.90
b3	5.20	5.33	5.46
c	0.43	0.53	0.61
D	5.98	6.10	6.22
D1	5.30REF		
E	6.40	6.60	6.73
E1	4.63	-	-
e	2.286BSC		
H	9.40	10.10	10.50
L	1.38	1.50	1.75
L1	2.90REF		
L2	0.51BSC		
L3	0.88	-	1.28
L4	0.50	-	1.00
L5	1.65	1.80	1.95
θ	0°		8°

Marking Information

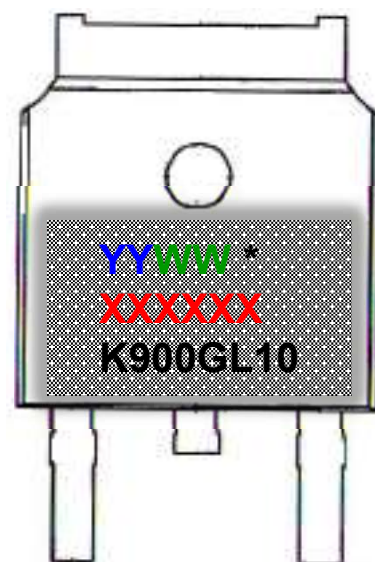
YY = Last two digits of the year

WW = Work week

***** = Site ID

XXXXXX = Lot ID

K900GL10 = ICE is IceMOS logo and
K900GL10 is a designated device
part number



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