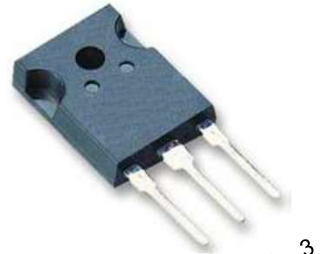
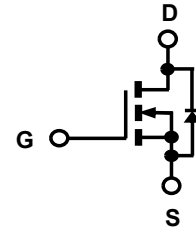


ICEK26NF65W N-Channel Enhancement Mode MOSFET

Features

- Good FOM performance
- EMI-Friendly
- Integrated with Fast-Recovery Diode
- High Frequency Switching
- High Efficiency SMPS
- Optimized design for high performance power systems

Product Summary			
I_D	$T_A=25^\circ\text{C}$	25.6A	Max
$V_{(BR)DSS}$	$I_D=250\mu\text{A}$	650V	Min
$r_{DS(on)}$	$V_{GS}=10\text{V}$	85m Ω	Typ
Q_g	$V_{DS}=400\text{V}$	48nC	Typ



TO247
1:G, 2:D,
3:S
(TO-247)



Lead Free

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

Parameter	Symbol	Conditions	Value	Unit
Continuous drain current ^b	I_D	$T_c=25^\circ\text{C}$ $T_c=100^\circ\text{C}$	25.6 16.2	A
Pulsed drain current ^b	$I_{D, \text{pulse}}$	$T_c=25^\circ\text{C}$	75	A
Avalanche energy, single pulse	E_{AS}	$L=10.8\text{mH}$, $V_{DD}=100\text{V}$, $I_D=6.3\text{A}$, $R_G=25\Omega$	214	mJ
Avalanche current, repetitive ^b	I_{AR}	limited by $T_{j\text{max}}$	6.3	A
MOSFET dv/dt ruggedness	dv/dt	$V_{DS}=400\text{V}$, $I_D=30\text{A}$, $T_j=125^\circ\text{C}$	100	V/ns
Reverse diode dv/dt			20	
Gate source voltage	V_{GS}	Static	± 30	V
		AC ($f>1\text{Hz}$)		
Power dissipation	P_{tot}	$T_c=25^\circ\text{C}$	156.3	W

^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 ^{a,c}	R_{thJC}		-	-	0.8	°C/W
Thermal resistance, junction-ambient ^{a,c}	R_{thJA}	leaded	-	-	30	

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

Static characteristics

Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0\text{ V}, I_D=250\mu\text{A}$	650	-	-	V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=1\text{mA}$	3	4	5	
Zero gate voltage drain current	I_{DSS}	$V_{DS}=650\text{V}, V_{GS}=0\text{V}$	-	-	10	μA
Gate source leakage current	I_{GSS}	$V_{GS}=\pm 30\text{ V}, V_{DS}=0\text{V}$	-	-	± 100	nA
Drain-source on-state resistance	$r_{DS(on)}$	$V_{GS}=10\text{V}, I_D=15\text{A}$	-	85	99	m Ω
Gate resistance	R_G	$f=1\text{ MHz}$, open drain	-	6	-	Ω

Dynamic characteristics

Input capacitance	C_{iss}	$V_{GS}=0\text{ V}, V_{DS}=400\text{ V}, f=1\text{ MHz}$	-	1485	-	pF
Reverse transfer capacitance	C_{rss}		-	9	-	
Output capacitance	C_{oss}		-	43	-	
Effective output capacitance, energy related	$C_{o(er)}$	$V_{GS}=0\text{ V}, V_{DS}=0\text{ to }400\text{ V}$	-	80	-	pF
Effective output capacitance, time related	$C_{o(tr)}$	$V_{GS}=0\text{ V}, V_{DS}=0\text{ to }400\text{ V}, I_D=\text{constant}$	-	600	-	pF
Turn-on delay time	$t_{d(on)}$	$V_{DS}=400\text{V}, V_{GS}=10\text{V}, I_D=15\text{A}, R_G=5\Omega$ (External)	-	19	-	ns
Rise time	t_r		-	35	-	
Turn-off delay time	$t_{d(off)}$		-	42	-	
Fall time	t_f		-	10	-	

Parameter	Symbol	Conditions	Values			Unit
			Min	Typ	Max	

Gate charge characteristics

Gate to source charge	Q_{gs}	$V_{DS}=400\text{ V}, I_D=15\text{ A},$ $V_{GS}=0\text{ to }10\text{ V}$	-	10	-	nC
Gate to drain charge	Q_{gd}		-	28	-	
Gate charge total	Q_g		-	48	-	

Reverse Diode

Continuous forward current	I_S	$V_{GS}=0\text{ V}$	-	-	25.6	A
Diode forward voltage	V_{SD}	$V_{GS}=0\text{ V}, I_S=15\text{ A}$	-	1.06	-	V
Reverse recovery time	t_{rr}	$V_{RR}=400\text{ V}, I_S=15\text{ A},$ $dI_F/dt=100\text{ A}/\mu\text{S}$	-	114	-	ns
Reverse recovery charge	Q_{rr}		-	0.7	-	μC
Peak reverse recovery current	I_{rm}		-	11	-	A

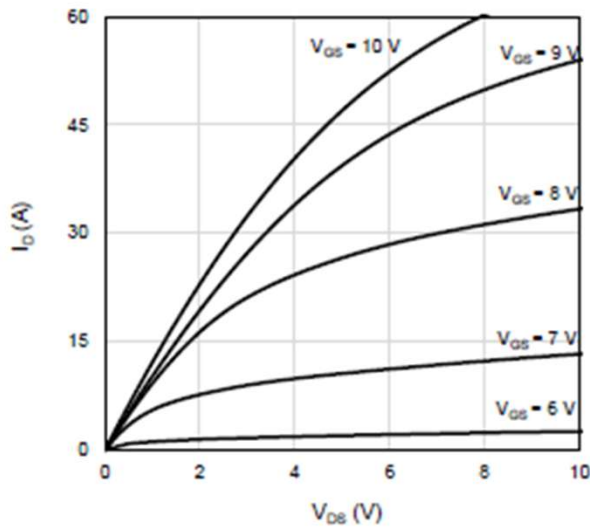


Figure 1: On-Region Characteristics

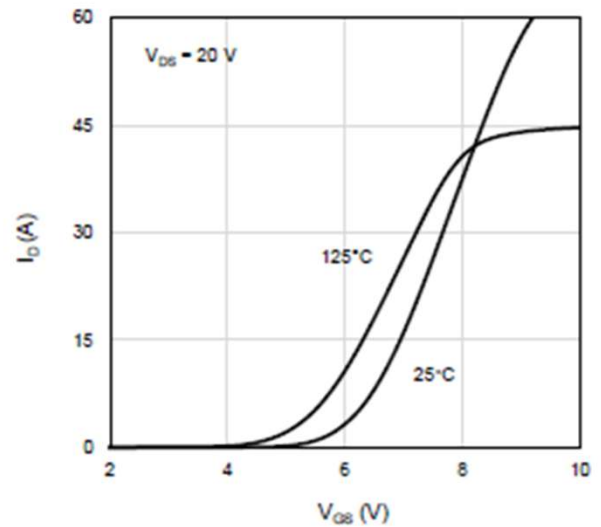


Figure 2: Transfer Characteristics

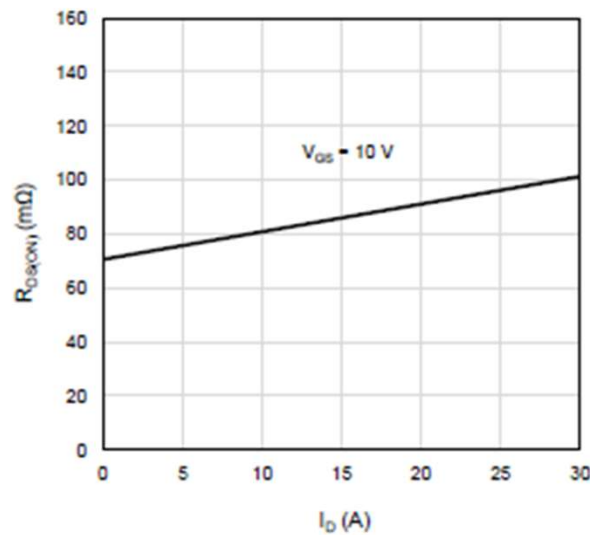


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

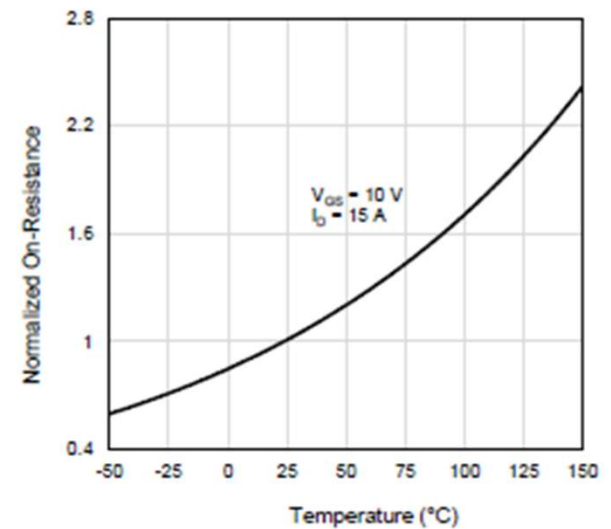


Figure 4: On-Resistance vs. Junction Temperature

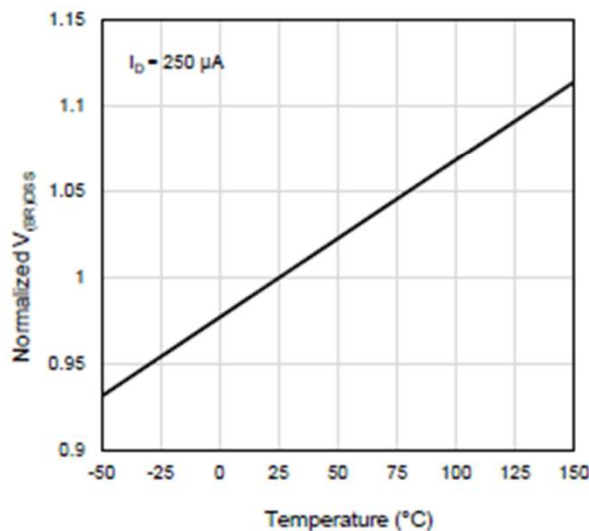


Figure 5: Breakdown Voltage vs. Junction Temperature

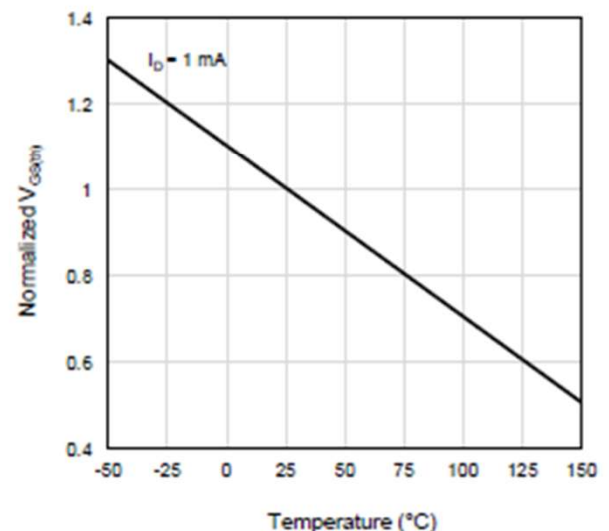


Figure 6: Threshold Voltage vs. Junction Temperature

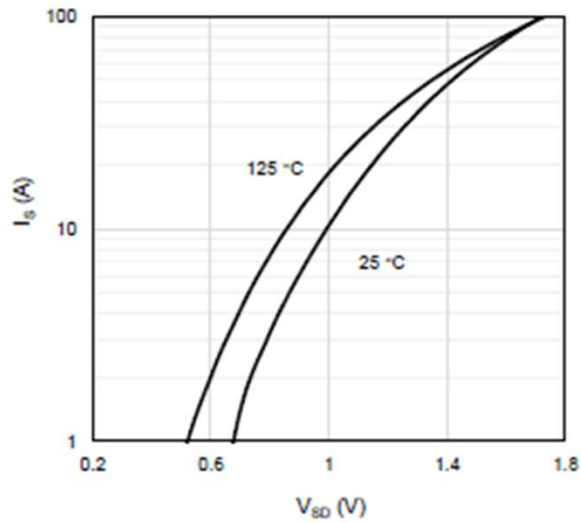


Figure 7: Body-Diode Characteristics

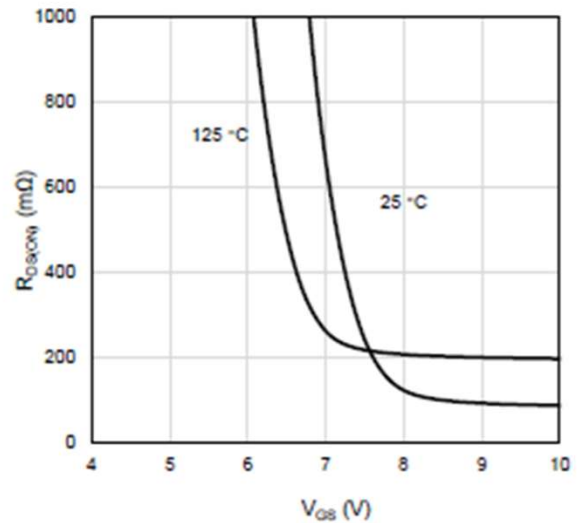


Figure 8: On-Resistance vs. Gate-Source Voltage

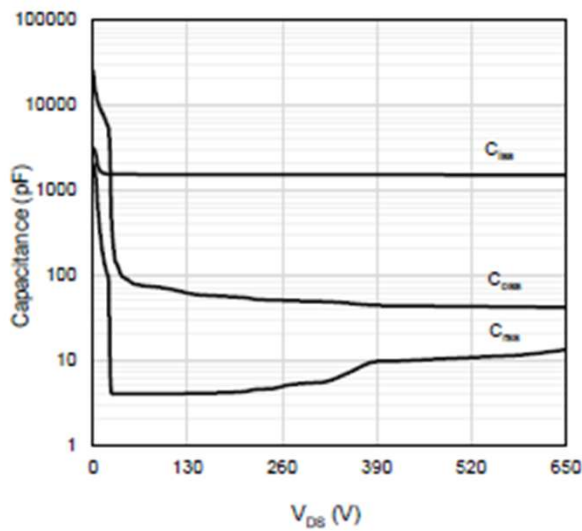


Figure 9: Capacitance Characteristics

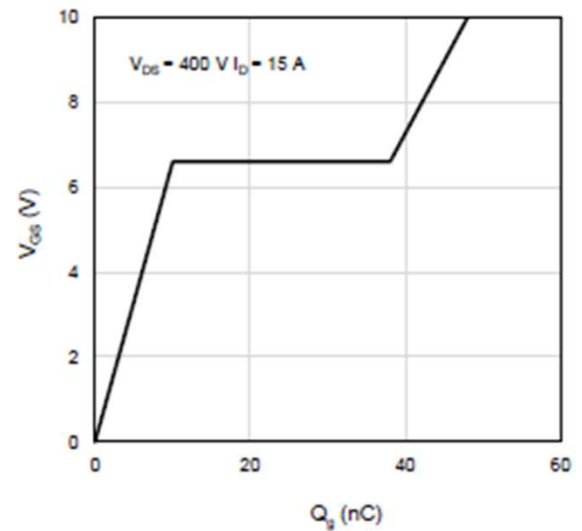


Figure 10: Gate-Charge Characteristics

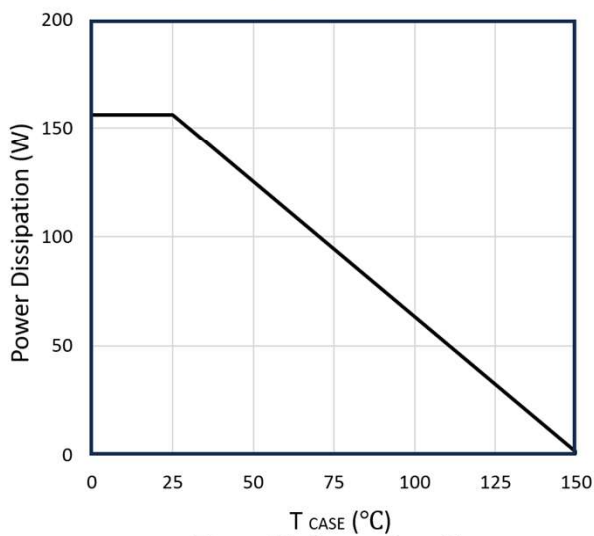


Figure 11: Power De-rating

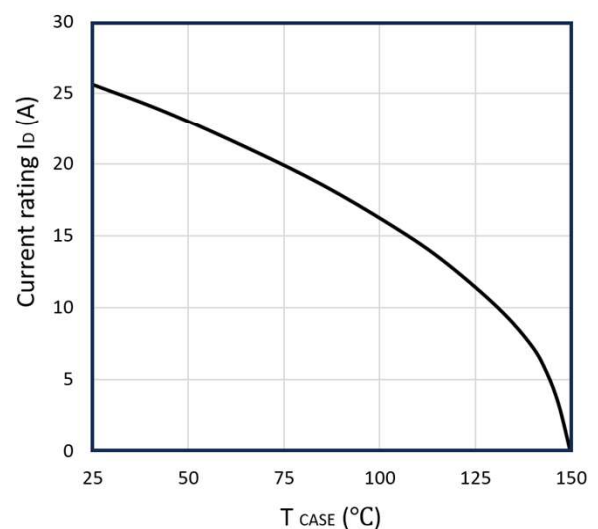


Figure 12: Current De-rating

Transient Thermal Response, Junction-to-Ambient

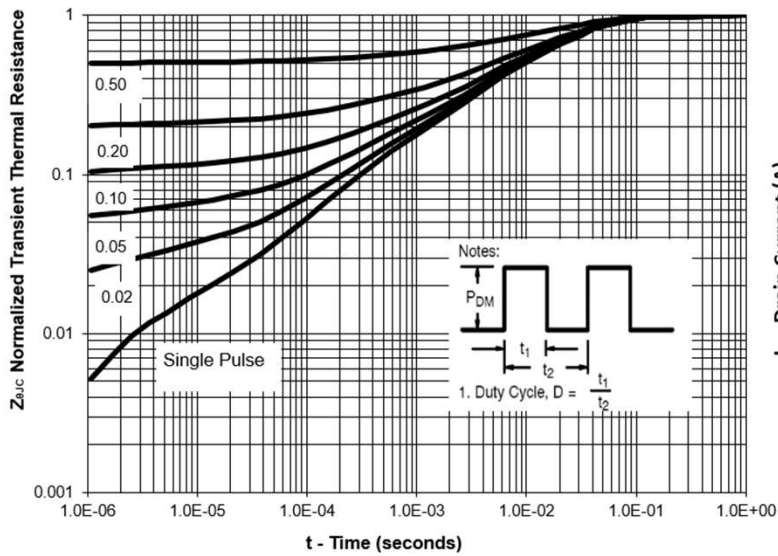


Figure 13: Normalized Maximum Transient Thermal Impedance

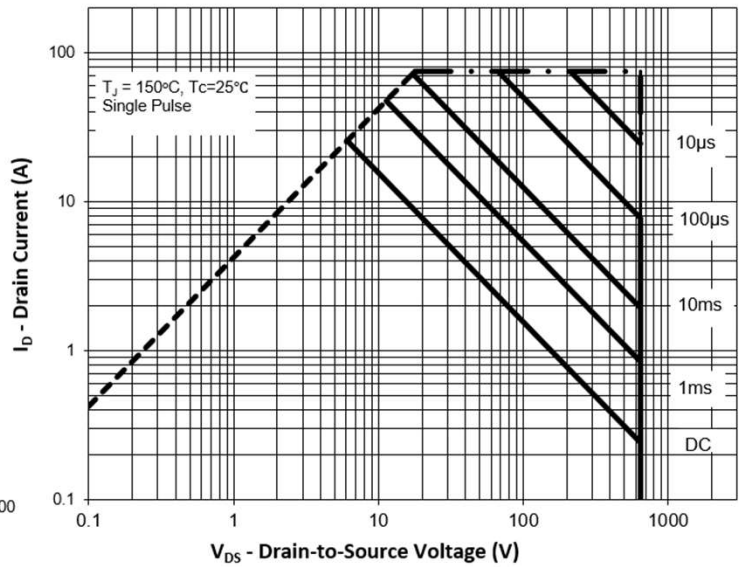
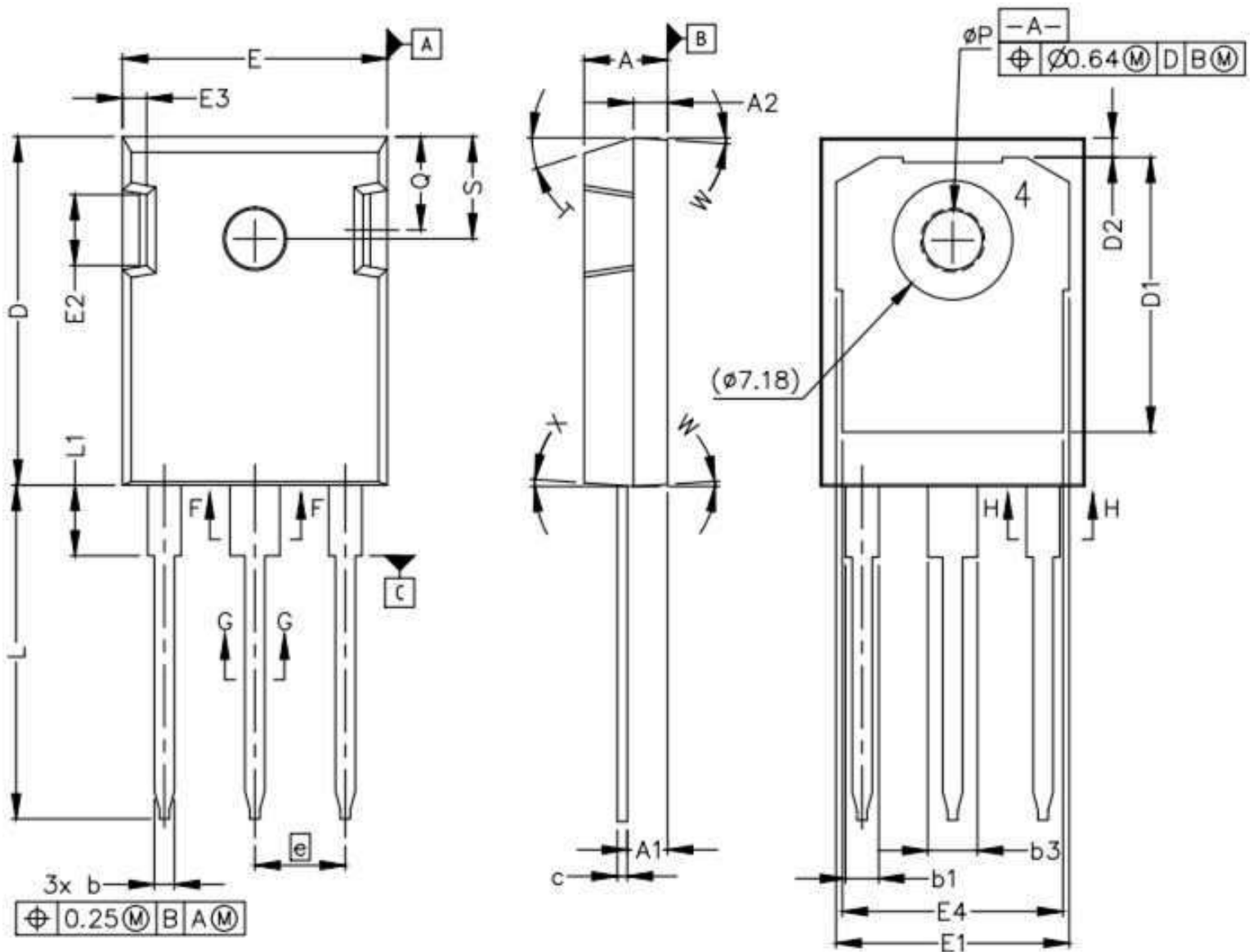


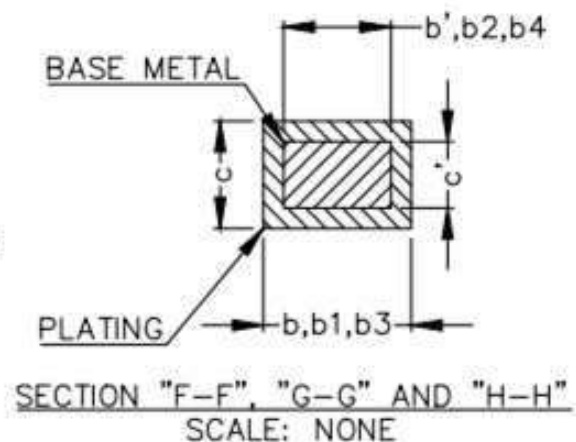
Figure 14: Maximum Forward Biased Safe

Package Outline: TO-247



NOTE:
1. ALL METAL SURFACES: TIN PLATED EXCEPT AREA OF CUT
2. DIMENSIONING & TOLERANCING CONFIRM TO ASME Y14.5M-1994.
3. ALL DIMENSIONS ARE IN MILLIMETERS. ANGLES ARE IN DEGREES.
4. THIS DRAWING WILL MEET ALL DIMENSIONS REQUIREMENT OF JEDEC OUTLINE TO-247 AD.

1 - GATE
2 - DRAIN (COLLECTOR)
3 - SOURCE (EMITTER)
4 - DRAIN (COLLECTOR)



Package Outline: TO-247

SYMBOL	MIN	MAX
A	4.83	5.21
A1	2.29	2.54
A2	1.91	2.16
b'	1.07	1.28
b	1.07	1.33
b1	1.91	2.41
b2	1.91	2.16
b3	2.87	3.38
b4	2.87	3.13
c'	0.55	0.65
c	0.55	0.68
D	20.80	21.10
D1	16.25	17.65
D2	0.95	1.25
E	15.75	16.13
E1	13.10	14.15
E2	3.68	5.10
E3	1.00	1.90
E4	12.38	13.43
e	5.44 BSC	
N	3	
L	19.81	20.32
L1	4.10	4.40
ØP	3.51	3.65
Q	5.49	6.00
S	6.04	6.30
T	17.5° REF.	
W	3.5° REF.	
X	4° REF.	

Marking Information

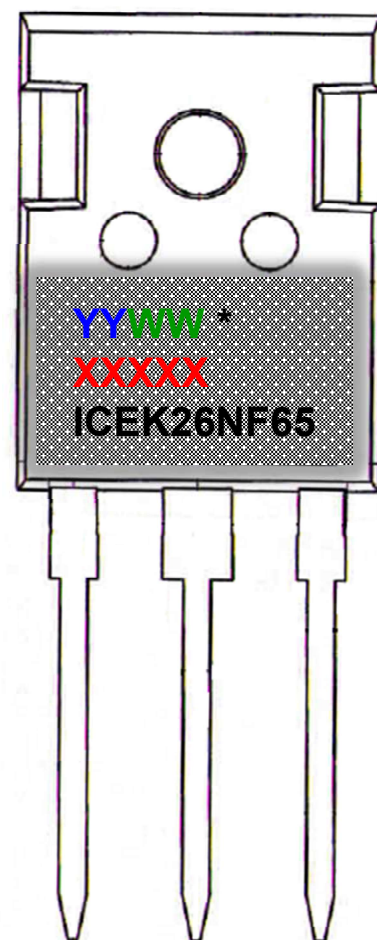
YY = Last two digits of the year

WW = Work week

***** = Site ID

XXXXXX = Lot ID

ICEK26NF65 = ICE is Icmos logo and K26NF65 is a designated device part number



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