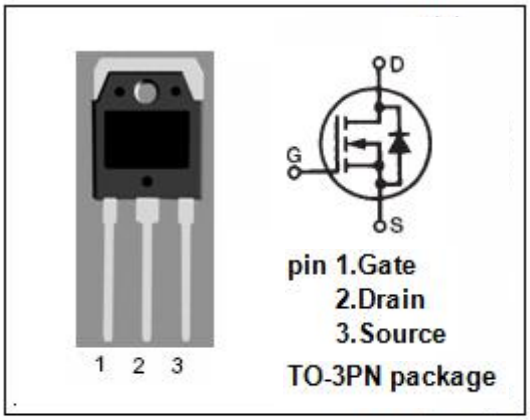
isc N-Channel MOSFET Transistor ISCNL256N

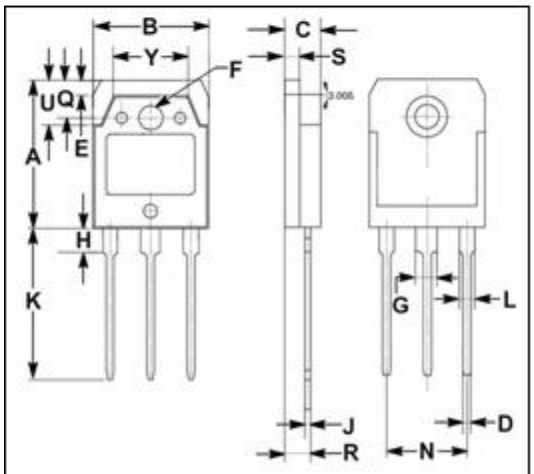
DESCRIPTION

- Drain Current –I_D=60A@ T_C=25℃
- Drain Source Voltage-
  : V_{DSS}=60V(Min)
- Fast Switching Speed
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation



APPLICATIONS

- Switch Mode Power Supply (SMPS)
- Uninterruptible Power Supply (UPS)



DIM	mm MIN	MAX
A	19.60	20.30
B	15.50	15.70
C	4.70	4.90
D	0.90	1.10
E	1.90	2.10
F	3.40	3.60
G	2.90	3.20
H	3.20	3.40
J	0.595	0.605
K	19.80	20.70
L	1.90	2.20
N	10.89	10.91
Q	4.90	5.10
R	3.35	3.45
S	1.995	2.100
U	5.90	6.20
Y	9.90	10.10

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

SYMBOL	ARAMETER	VALUE	UNIT
V_{DSS}	Drain-Source Voltage (V_{GS}=0)	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current-continuous@ T_C=25℃	60	A
I_{DM}	Drain Current-Single Pluse	240	A
P_{tot}	Total Dissipation@T_C=25℃	150	W
E_{AS*}	Single pulse avalanche energy	1054	mJ
I_{AR}	Avalanche current	60	A
E_{AR}	Repetitive avalanche energy	15	mJ
T_j	Max. Operating Junction Temperature	150	℃
T_{stg}	Storage Temperature Range	-55~150	℃

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j\text{-}c}$	Thermal Resistance,Junction to Case	0.833	℃/W

Note:

*** V_{DD}=25V,L=0.4uH,R_G=25Ω， I_{AR}=60A**

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• ELECTRICAL CHARACTERISTICS (T_C=25℃)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0; I_D= 10mA	60			V
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D= 1mA	0.8	1.7	2.0	V
$R_{DS(ON)}$	Drain-Source On-stage Resistance	V_{GS}= 10V; I_D=30A			11	mΩ
I_{GSS}	Gate Source Leakage Current	V_{GS}= ±20V; V_{DS}= 0			±10	uA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=60V; V_{GS}= 0			100	μA
C_{iss}	Input Capacitance	V_{GS} = 0V, V_{DS} = 25V, f = 1.0MHz		3795		pF
C_{oss}	Output Capacitance			1456		
C_{rss}	Reverse Transfer Capacitance			1101		
R_G	Gate resistance	f = 1.0MHz open drain		0.75		Ω
Q_g	Total Gate Charge	V_{DD} = 64V, I_D = 100A, V_{GS} =10V		338		nC
Q_{gs}	Gate-Source Charge			12		
Q_{gd}	Gate-Drain Charge			175		
$t_{d(on)}$	Turn-on Delay Time	V_{DD} = 40V, I_D = 100A, R_G = 25Ω		45		ns
t_r	Turn-on Rise Time			178		
$t_{d(off)}$	Turn-off Delay Time			1062		
t_f	Turn-off Fall Time			830		
I_{SD}	Continuous Source Current	T_C = 25 ºC			100	A
I_{SM}	Pulsed Source Current				400	
V_{SD}	Diode Forward Voltage	I_S=60A; V_{GS}=0			1.7	V
t_{rr}	Reverse Recovery Time	V_{DD} = 40V,IF = 30A, diF/dt =100A /μs		210		ns
Q_{rr}	Reverse Recovery Charge			1.5		uC

Figure 1. Output Characteristics (T_J = 25ºC)

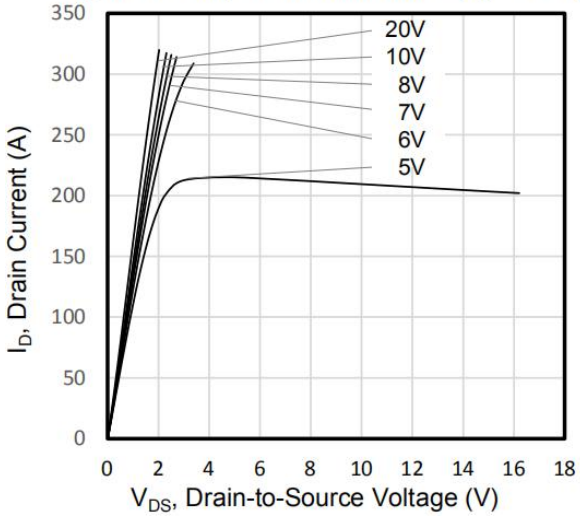


Figure 2. Body Diode Forward Voltage

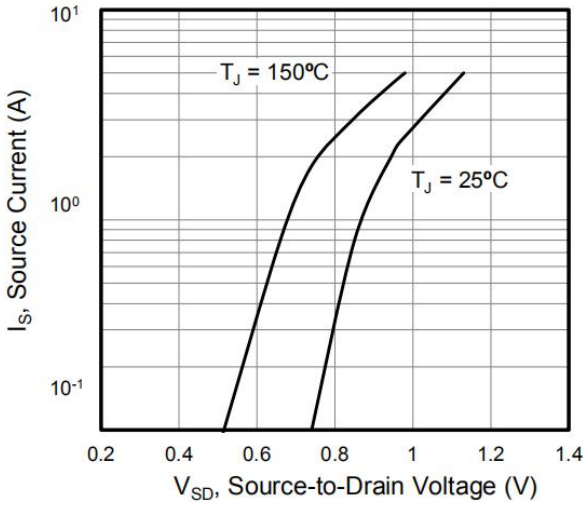


Figure 3. Drain Current vs. Temperature

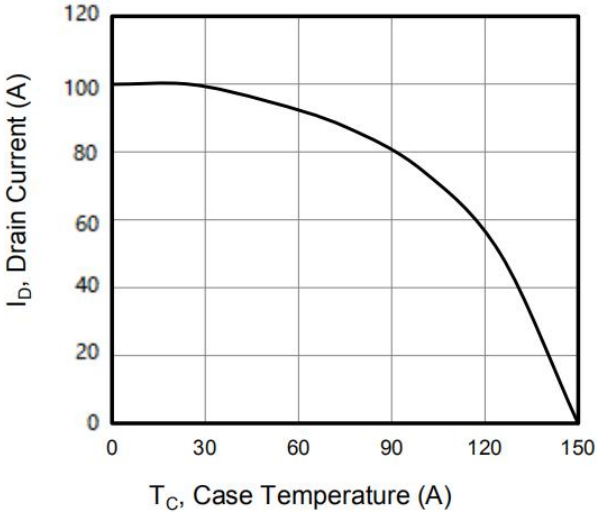


Figure 4. BV_{DSS} Variation vs. Temperature

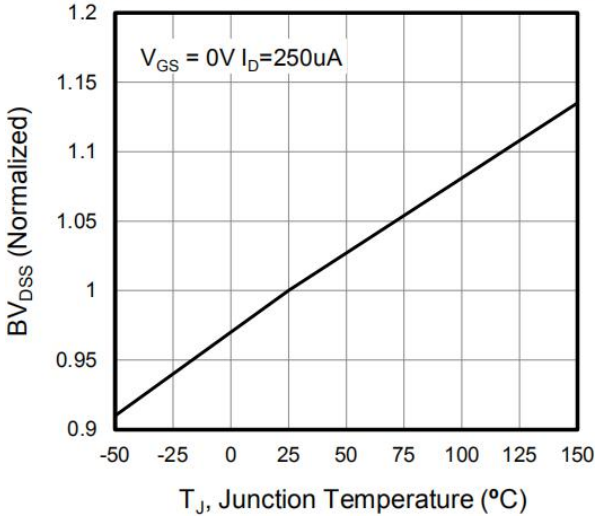


Figure 5. Transfer Characteristics

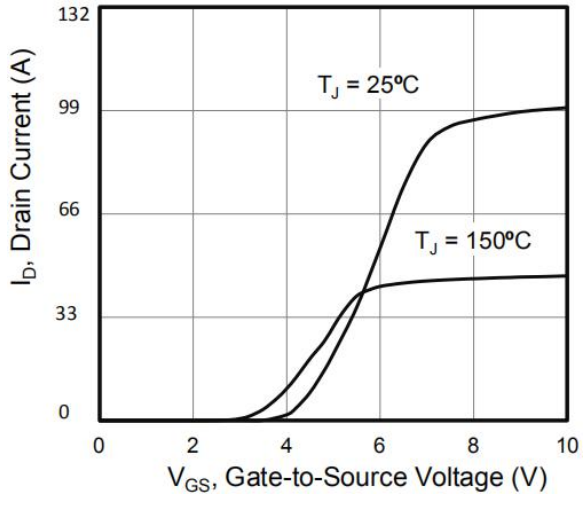


Figure 6. On-Resistance vs. Temperature

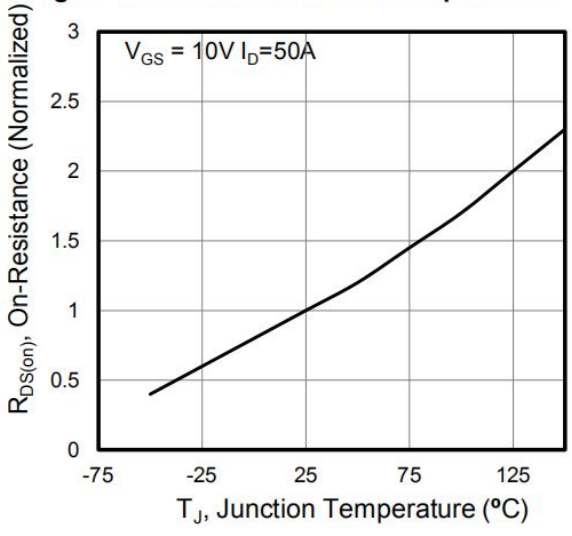


Figure 7. Capacitance

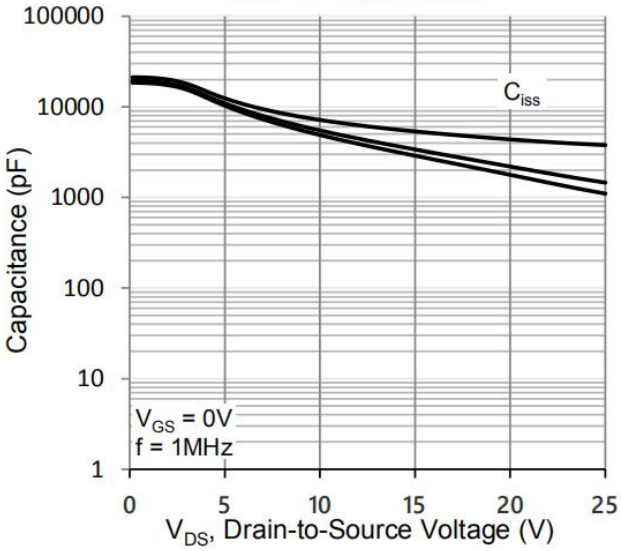


Figure 8. Gate Charge

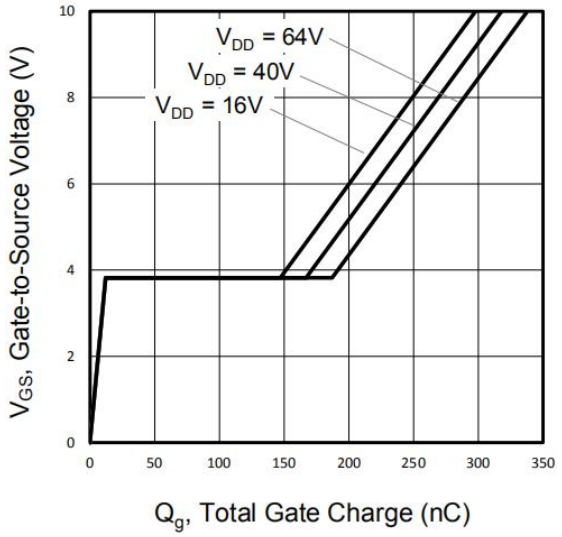
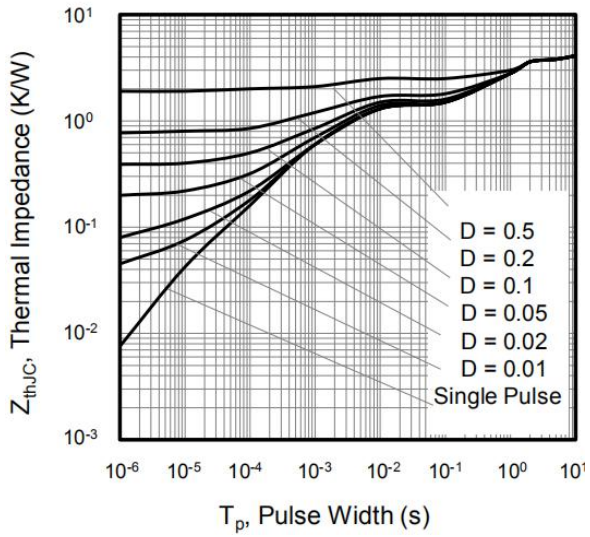
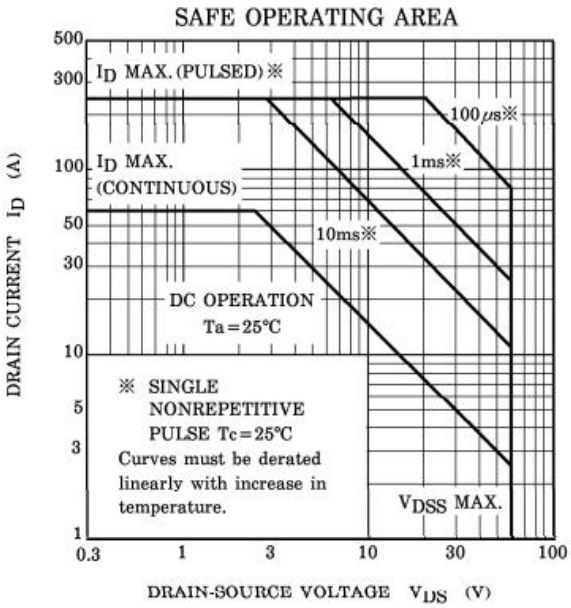


Figure 9. Transient Thermal Impedance





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