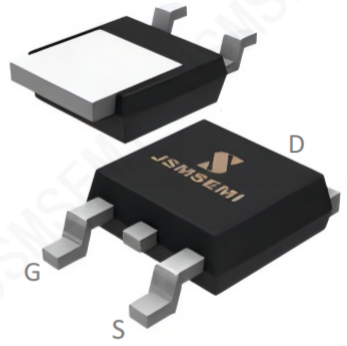
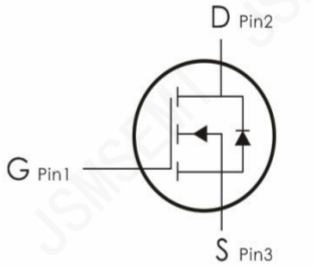
■ DESCRIPTION

The SNCE3080K is N channel enhancement mode power effect transitor which is produced using high cell density advanced trench technology. The high density process is especially able to minize on-state resistance.These devices are. especially suited for low voltage application power management DC-DC converters.



■ FEATURE

- $R_{DS(ON)}$=6mΩ(MAX.)@VGS= 10V
- $R_{DS(ON)}$=9mΩ(MAX.)@VGS= 4.5V
- Super high design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and Maximum DC current capability
- Full RoHS compliance
- TO252 package design
- 100% UIS Tested
- 100% Rg tested



■ APPLICATIONS

- Power Management
- DC/DC Converter
- Load Switch

Absolute Maximum Ratings(T_A= 25 ℃, unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current Note 1	T_C=25℃	I_D	80	A
Pulsed Drain Current Note 2	T_C=25℃	I_{DM}	320	A
Max Power Dissipation Note 3	T_C=25℃	P_D	60	W
Avalanche Energy, Single Pulse Note 4		E_{AS}	133	mJ
Operation Junction temperature		T_J,T_{SGT}	-55 to 150	℃

Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship,Quantity	Green
SNCE3080K	TO-252	3080K	-55 to 150°C	1	T&R,2500	Rohs

Thermal Resistance

Parameter	Symbol	Min	Typ	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	-	1.985	-	℃/W

Notes:

1) Calculated continuous current based on maximum allowable junction temperature.
2) Repetitive rating; pulse width limited by max. junction temperature.
3) P_D is based on max. junction temperature, using junction-case thermal resistance.
4) V_{DD}= 30V,V_{GS}= 10 V, L=0.5 mH, starting T_J=25 ℃.

Electrical Characteristics(T_A= 25 ℃, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Statistic Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250uA	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V	-	-	1	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	1.0	1.5	2.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=30A	-	4.4	6.0	mΩ
		V_{GS}=4.5V, I_D=20A	-	6.7	9.0	
Gate Resistance	R_G	f=1MHz, Open Drain	-	3.7	-	Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{GS}=0V	-	1340	-	pF
Output Capacitance	C_{oss}	V_{DS}=15V	-	187	-	
Reverse Transfer Capacitance	C_{rss}	f=1MHz	-	129	-	
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=15V	-	5.3	-	ns
Rise Time	t_r	V_{GS}=10V	-	5	-	
Turn-off Delay Time	$t_{d(off)}$	I_D=30A	-	23.6	-	
Fall Time	t_f	R_G=3Ω	-	5	-	
Gate Charge Characteristics						
Total Gate Charge	Q_g	V_{GS}=10V	-	26.5	-	nC
Gate to Source Charge	Q_{gs}	V_{DS}=25V	-	3.97	-	
Gate to Drain Charge	Q_{gd}	I_D=30A	-	7.09	-	
Reverse Diode Characteristics						
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=30A	-	0.8	1.1	V
Reverse Recovery Time	t_{rr}	V_{DD}=20V I_F=20A	-	26.6	-	ns
Reverse Recovery Charge	Q_{rr}	di/dt=100A/us	-	13.6	-	nC

Typical Performance Characteristics

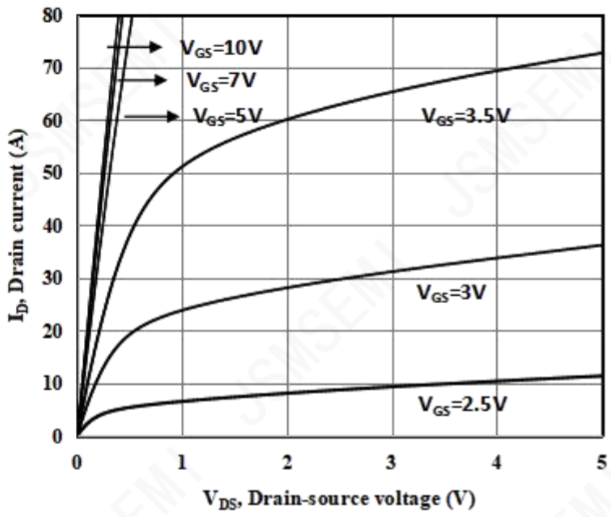


Figure 1: Typ Output Characteristics

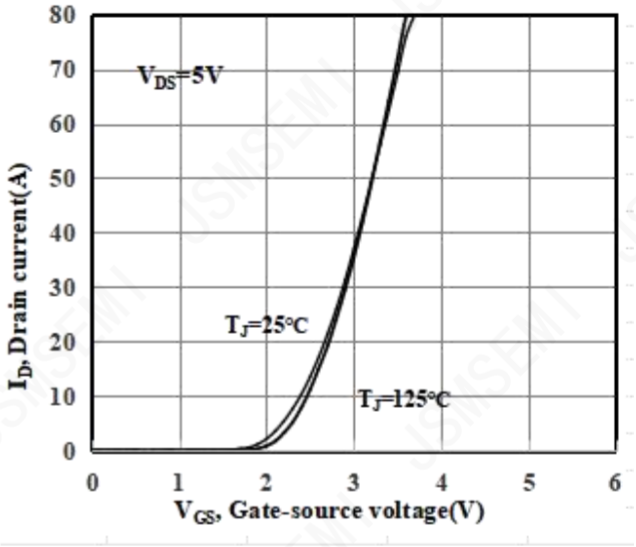


Figure 2: Typ Transfer Characteristics

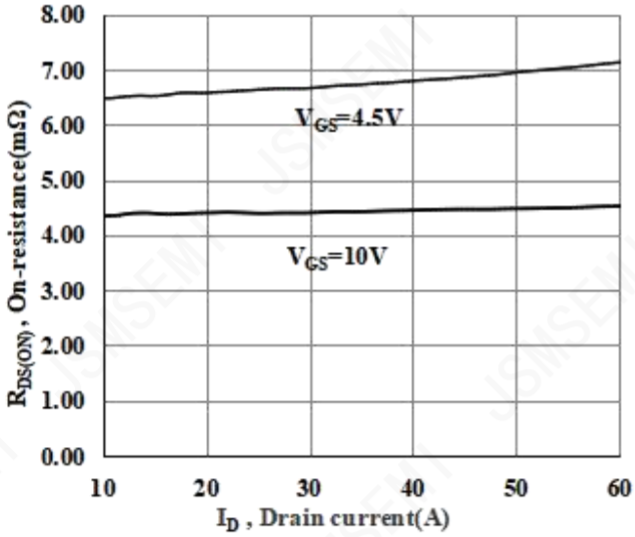


Figure 3: Typ. On-Resistance vs. Drain Current

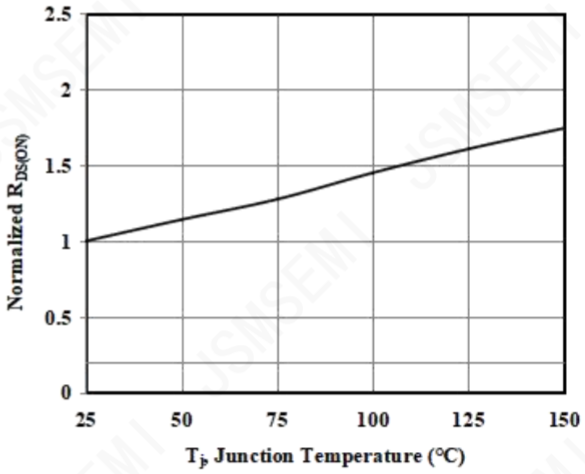


Figure 4: On-Resistance vs. Temperature

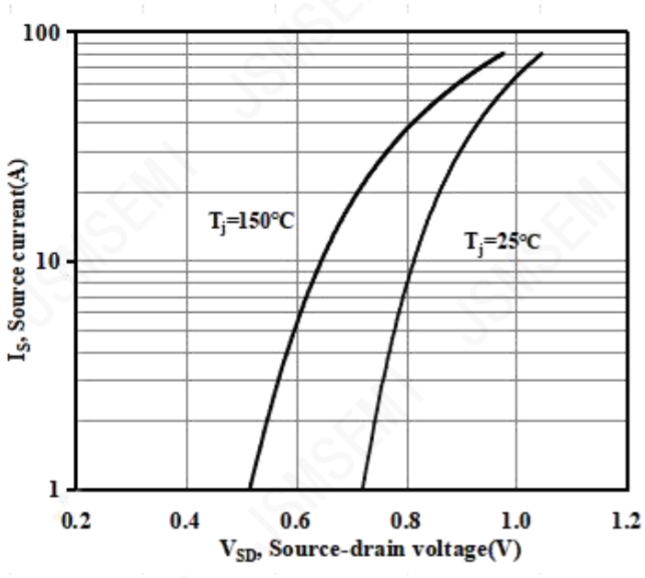


Figure 5: Is vs Source to Drain Voltage

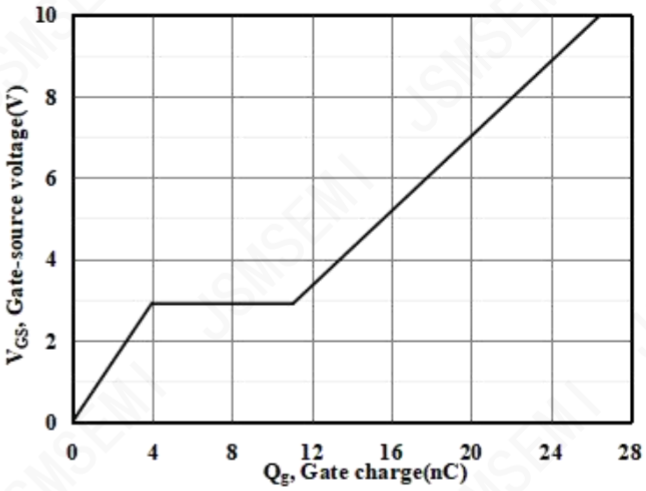


Figure 6: Gate Charge Characteristics

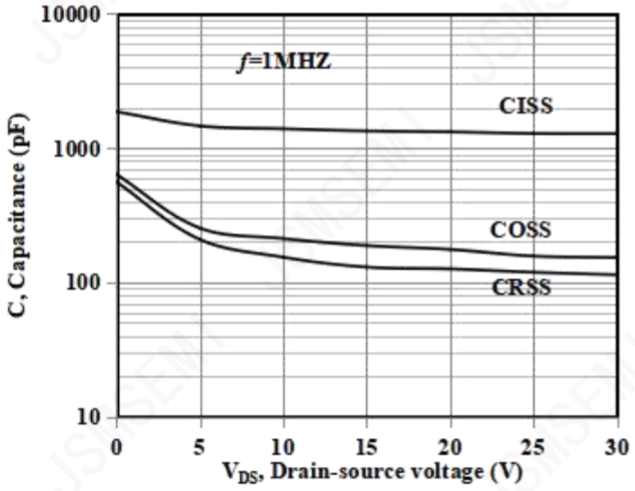


Figure 7: Capacitance Characteristics

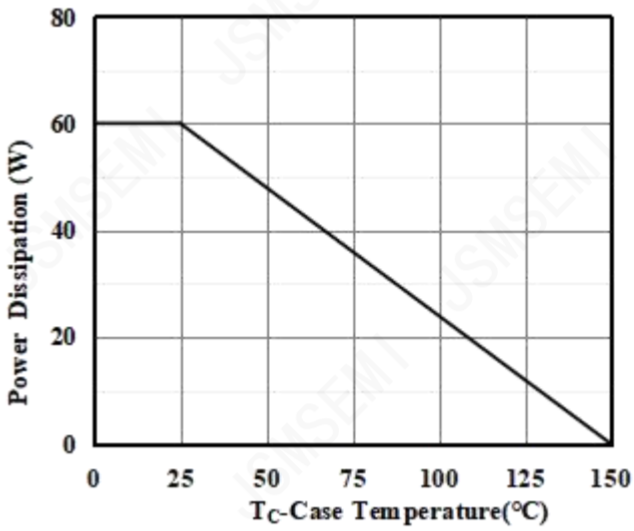


Figure 8: Power dissipation

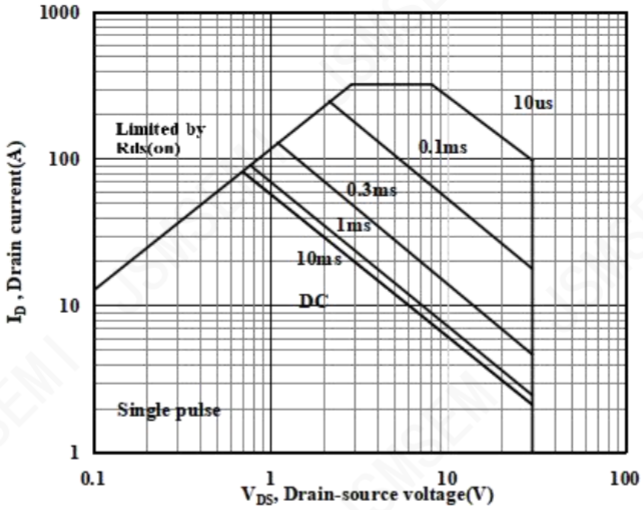


Figure 9: Safe Operating Area

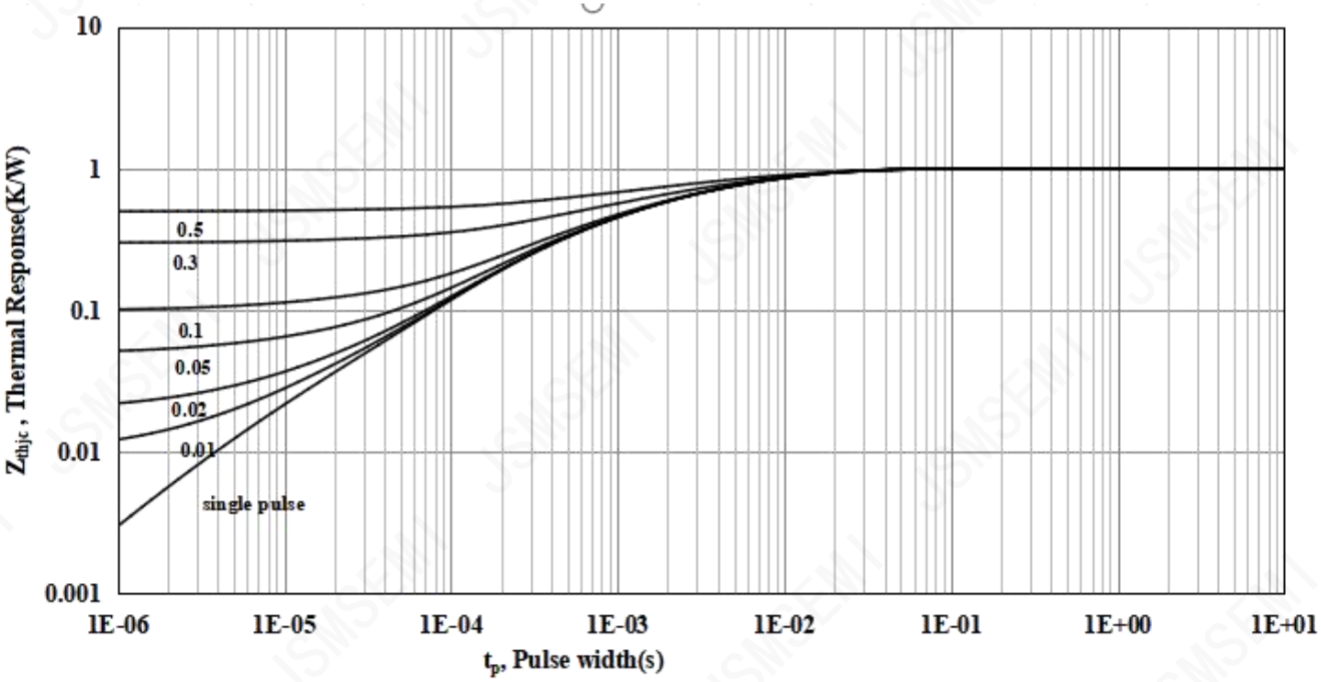
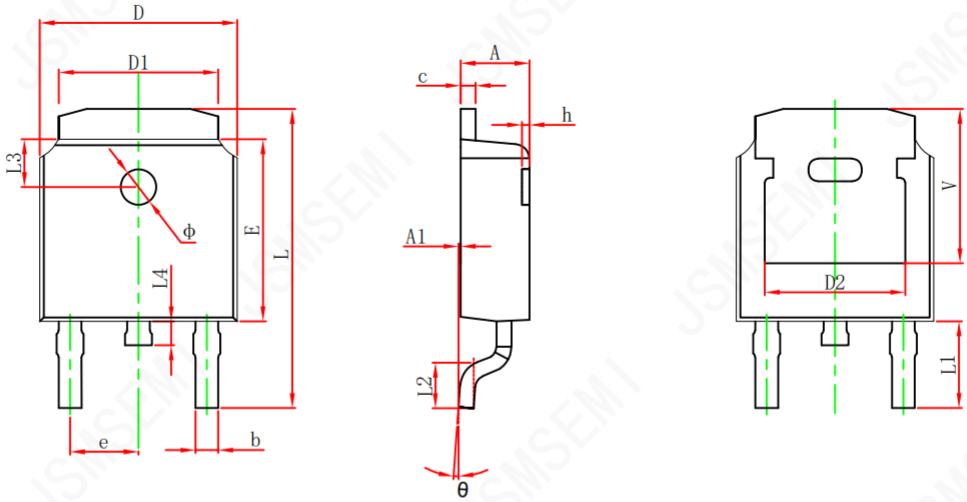


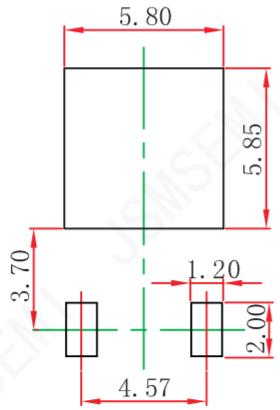
Figure 10: Normalized Max Transient Thermal Impedance

TO-252-2L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250 REF.		0.207 REF.	

TO-252-2L Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.