Description

This 12.6A,20V N-Channel MOSFET in a DFN 3×3-8L Plastic Package.

Applications

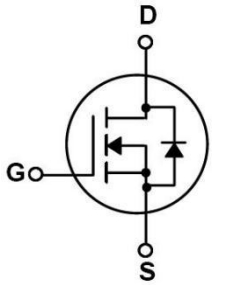
Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products.

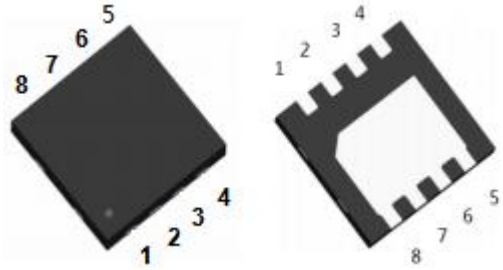
Features

- V_{DS} (V) = 20V
- I_D =12.6 A (V_{GS} = ±12V)
- Halogen-Free Product

V_{DSS}	$R_{DS(on)}$ Typ	I_D
20V	8mΩ	12.6A

Equivalent Circuit & Pinning





PIN1、PIN 2、PIN 3: Source　PIN 4：Gate

PIN5、PIN 6、PIN 7、PIN 8: Drain

Absolute Maximum Ratings(Ta=25℃)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	20	V
Drain Current		I_D(Tc=25℃)	12.6	A
Gate-Source Voltage		V_{GS}	±12	V
Avalanche Current		I_{AS}	12.5	A
Single Pulsed Avalanche Energy		E_{AS}	111	mJ
Power Dissipation		P_D(Tc=25℃)	3.1	W
Junction Temperature Range		T_j	150	℃
Storage Temperature Range		T_{stg}	-55～150	℃
Maximum Junction-to-Ambient	t≤10s	$R_{\theta JA}$	40	℃/W
	Steady-State	$R_{\theta JA}$	80	

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	20	25		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V V_{GS}=0V			1.0	μA
		V_{DS}=16V T_J=150℃			50	
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±12V V_{DS}=0V			±0.1	μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=10.0A		8	10	mΩ
		V_{GS}=4.5V I_D=10.0A		9.5	11	mΩ
		V_{GS}=2.5V I_D=10.0A		14	16	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	0.5	0.8	1.1	V
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_F=1.0A		0.75	1.2	V
Signal Source Resistance	Rg	F=1MHz		2.7		Ω
Input Capacitance	C_{iss}	V_{DS}=15V V_{GS}=0V f=1.0MHz		1400		pF
Output Capacitance	C_{oss}			1190		
Reverse Transfer Capacitance	C_{rss}			975		
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=10V V_{GS}=10V R_L=1.0Ω R_{GEN}=3.0Ω		2.5		ns
Turn-On Rise Time	t_r			7.2		
Turn-Off Delay Time	$t_{d(off)}$			49		
Turn-Off Fall Time	t_f			10.8		

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	$Q_{g(4.5V)}$	V_{DS}=10V V_{GS}=4.5V I_D=12.0A		17.9		nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			4.7		

Electrical Characteristic Curve

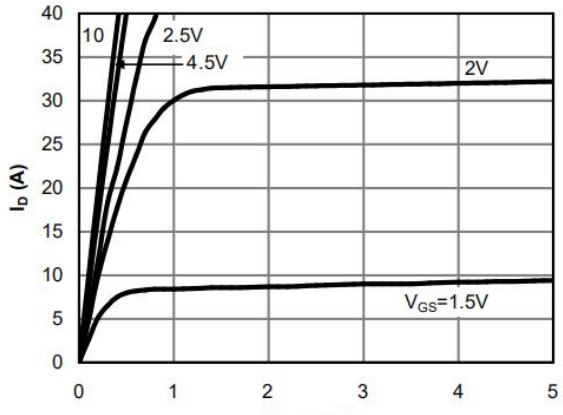


Fig 1: On-Region Characteristics

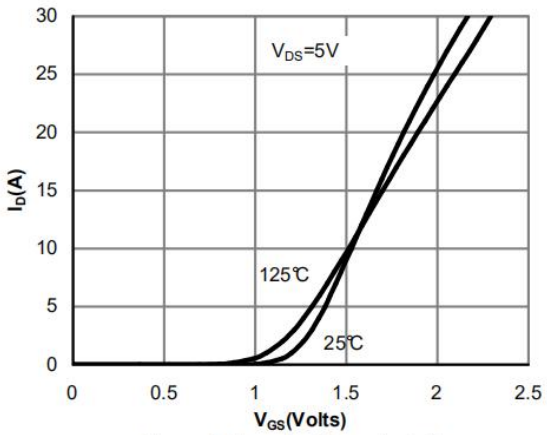


Figure 2: Transfer Characteristics

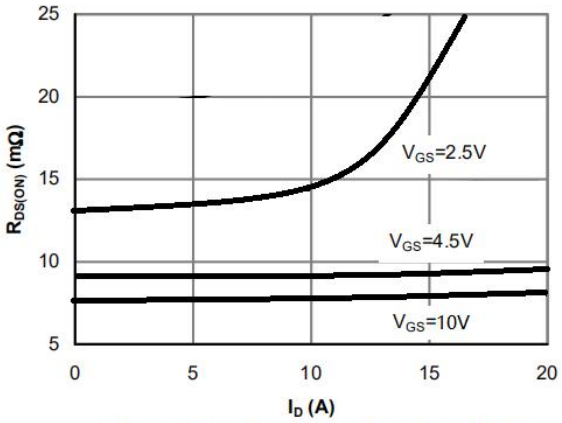


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

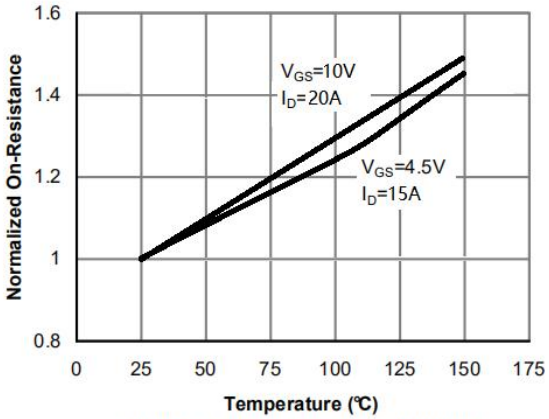


Figure 4: On-Resistance vs. Junction Temperature

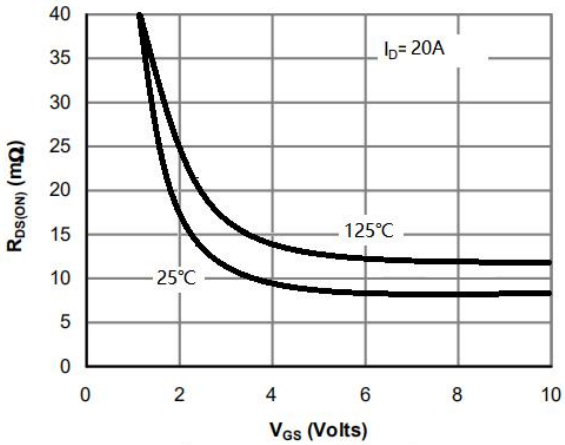


Figure 5: On-Resistance vs. Gate-Source Voltage

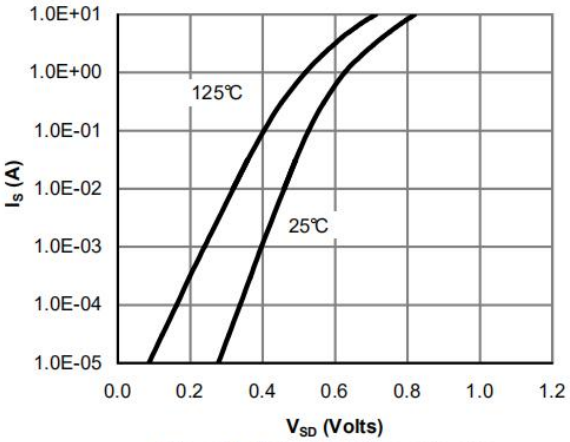


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

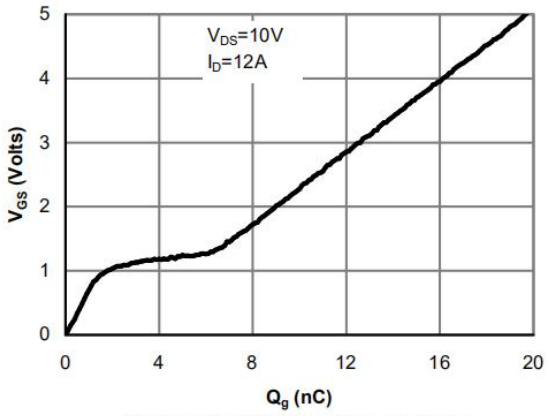


Figure 7: Gate-Charge Characteristics

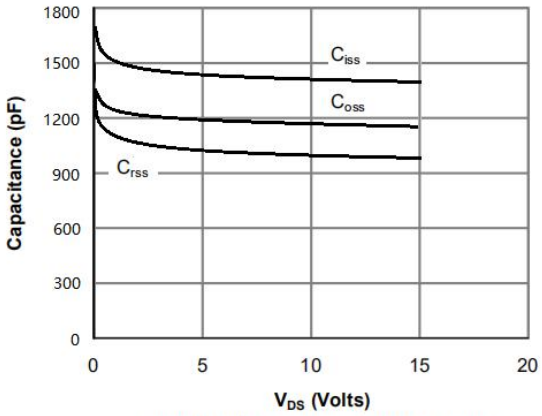


Figure 8: Capacitance Characteristics

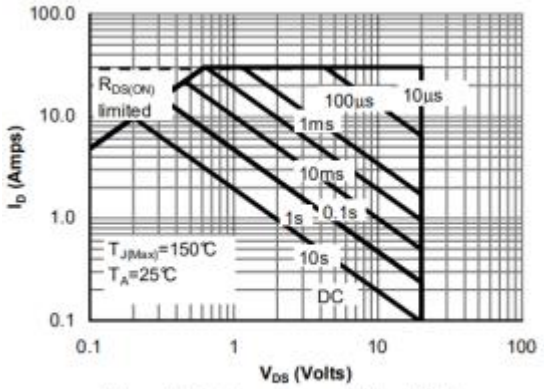


Figure 9: Maximum Forward Biased Safe Operating Area

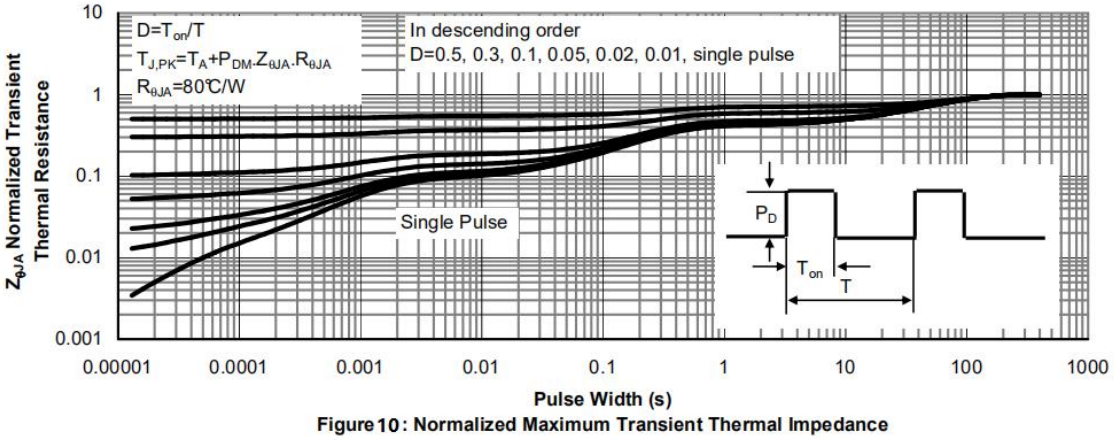
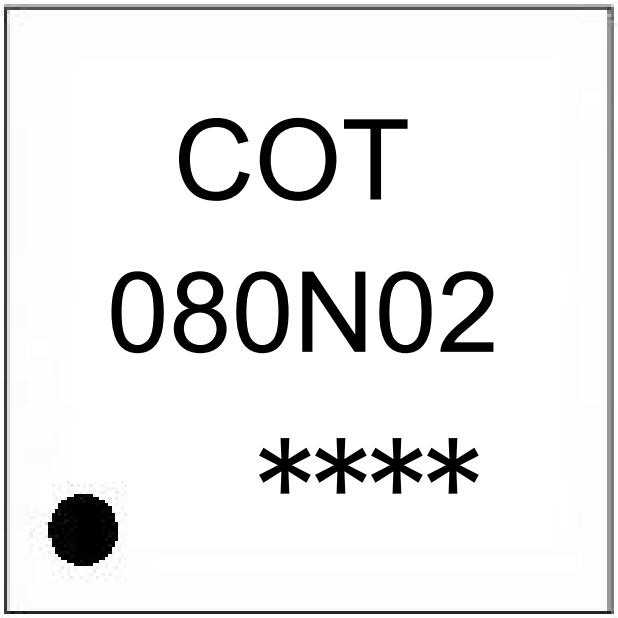


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

COT: Company Logo

080N02: Product Type.

****: Lot No. Code, code change with Lot No.

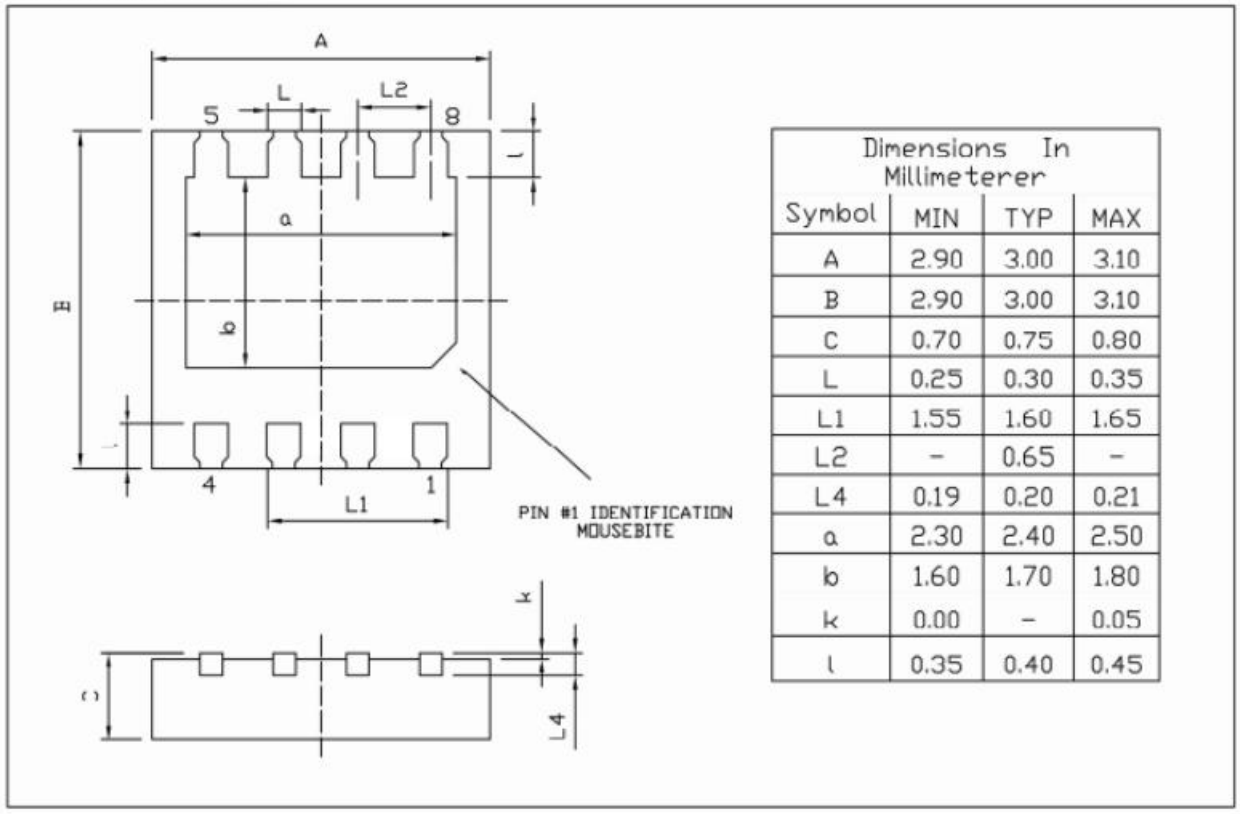
Packaging SPEC.

REEL INFORMATION

Package Type	Units					Dimension (unit：mm³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
DFN 3*3-8L	5,000	2	10,000	6	60,000	13″ ×12	360×360×50	380×335×366

Package Dimensions

DFN3X3-8L Unit:mm



Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	2.90	3.00	3.10
B	2.90	3.00	3.10
C	0.70	0.75	0.80
L	0.25	0.30	0.35
L1	1.55	1.60	1.65
L2	-	0.65	-
L4	0.19	0.20	0.21
a	2.30	2.40	2.50
b	1.60	1.70	1.80
k	0.00	-	0.05
l	0.35	0.40	0.45