

Description

This N-Channel Enhancement Mode Field Effect Transistor in a PDFN 3×3A-8L Plastic Package.

Applications

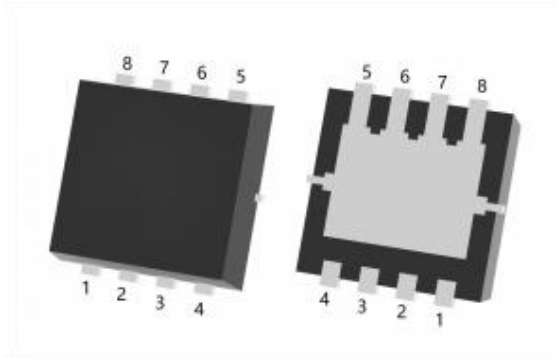
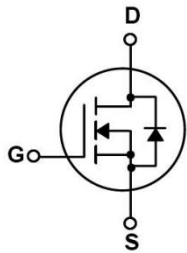
- Load Switch Applications
- Battery Power Management.

Features

- $V_{DS} (V) = 40V$ $I_D = 57A$ ($V_{GS} = \pm 20V$)
- $R_{DS(ON)}@10V \leq 5m\Omega$ (Typ. 4.5m Ω)
- $R_{DS(ON)}@4.5V \leq 10m\Omega$ (Typ. 6.2m Ω)
- Halogen-Free Product

V_{DSS}	$R_{DS(on)(typ)}$	I_D
40V	4.5m Ω	57A

Equivalent Circuit & Pinning



出脚	定义
Pin1	S
Pin2	S
Pin3	S
Pin4	G
Pin5	D
Pin6	D
Pin7	D
Pin8	D

Marking

See Marking Instructions.

Absolute Maximum Ratings(Ta=25°C)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	40	V
Drain Current		$I_D(T_C=25^{\circ}\text{C})$	57	A
Drain Current - Pulsed		I_{DM}	137	A
Gate-Source Voltage		V_{GS}	± 20	V
Single Pulsed Avalanche Energy		E_{AS}	583.2	mJ
Avalanche Current		I_{AS}	27	A
Power Dissipation		$P_D(T_C=25^{\circ}\text{C})$	30	W
Operating and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^{\circ}\text{C}$
Junction-to-Ambient	$t \leq 10$	$R_{\theta JA}$	40	$^{\circ}\text{C/W}$
Junction-to-Ambient	Steady-State		75	
Junction-to-Case	Steady-State	$R_{\theta JC}$	4.2	

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	40	43		V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =40V V _{GS} =0V			1	μA
Gate-Body Leakage Current Forward	I _{GSS}	V _{GS} =±20V V _{DS} =0V			±0.1	μA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =250μA	1.0	1.7	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V I _D =20A		4.5	5	mΩ
		V _{GS} =4.5V I _D =10A		6.2	10	mΩ
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V I _S =1A			1.2	V
Input Capacitance	C _{iss}	V _{DS} =25V V _{GS} =0V f=1.0MHz		2900		pF
Output Capacitance	C _{oss}			210		
Reverse Transfer Capacitance	C _{rss}			200		
Gate resistance	R _g	V _{GS} =0V V _{DS} =0V f=1MHz		2.5		Ω
Total Gate Charge	Q _{g(10V)}	V _{GS} =10V V _{DS} =20V I _D =20A		70		nC
Total Gate Charge	Q _{g(4.5V)}			15		
Gate Source Charge	Q _{gs}			15		
Gate Drain Charge	Q _{gd}			22		
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V V _{DS} =20V R _L =1Ω R _{GEN} =3.0Ω		15		ns
Turn-On Rise Time	t _r			30		
Turn-Off Delay Time	t _{d(off)}			54		
Turn-Off Fall Time	t _f			20		

Electrical Characteristic Curve

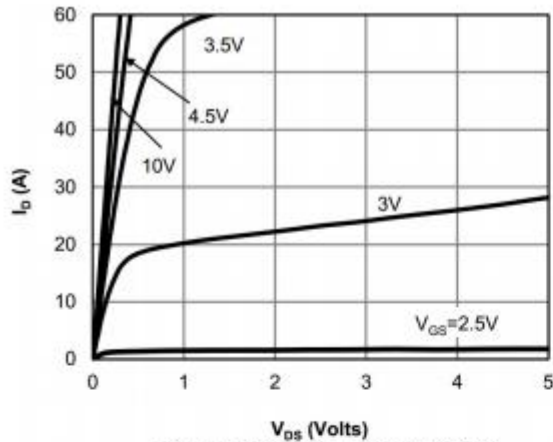


Figure 1: On-Region Characteristics

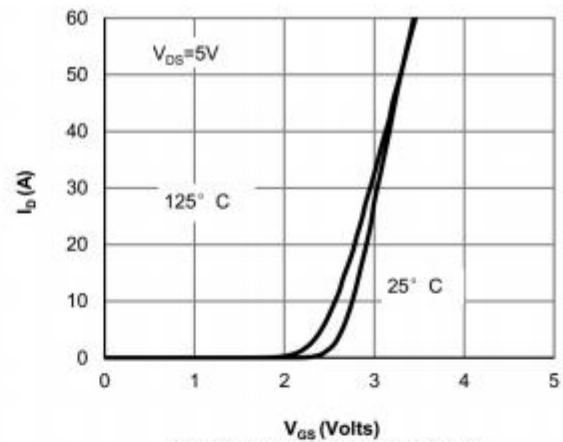


Figure 2: Transfer Characteristics

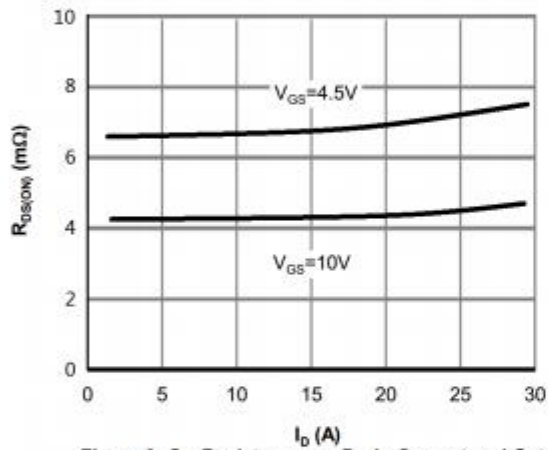


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

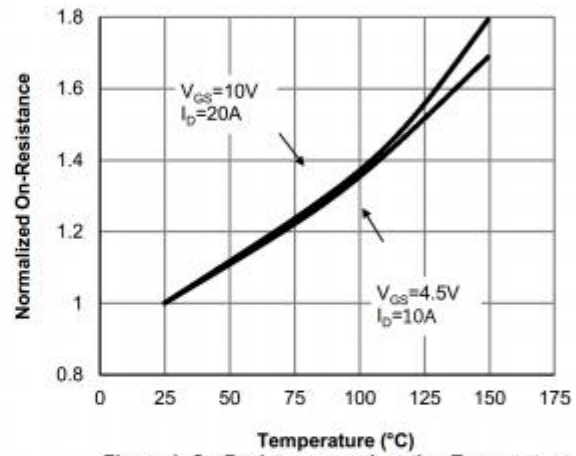


Figure 4: On-Resistance vs. Junction Temperature

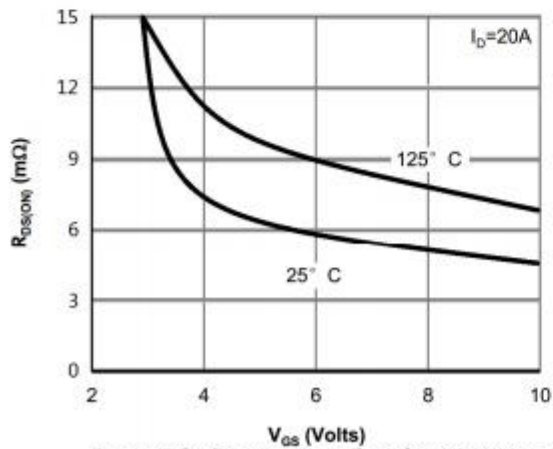


Figure 5: On-Resistance vs. Gate-Source Voltage

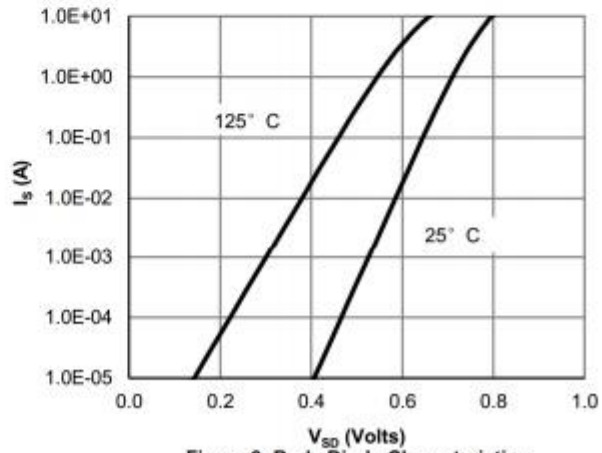


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

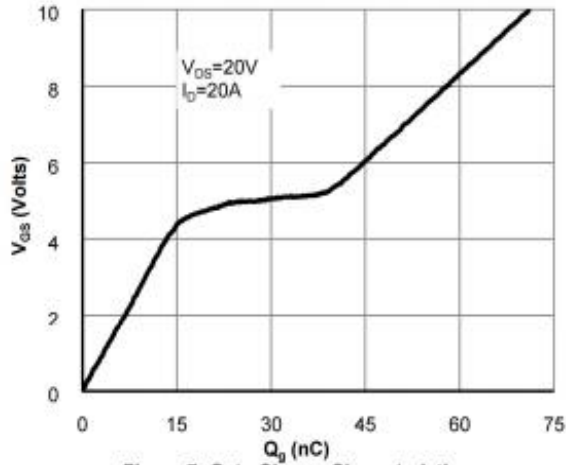


Figure 7: Gate-Charge Characteristics

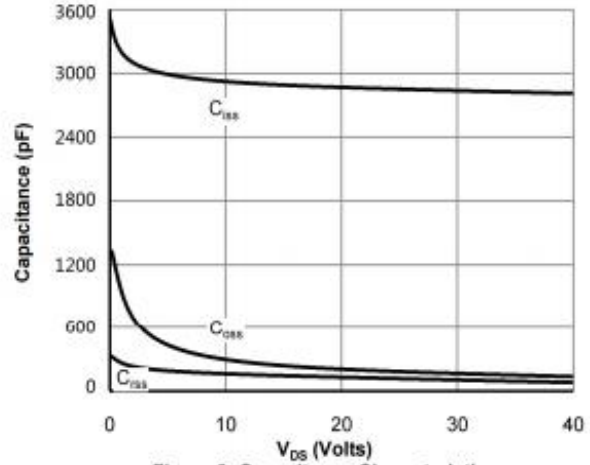


Figure 8: Capacitance Characteristics

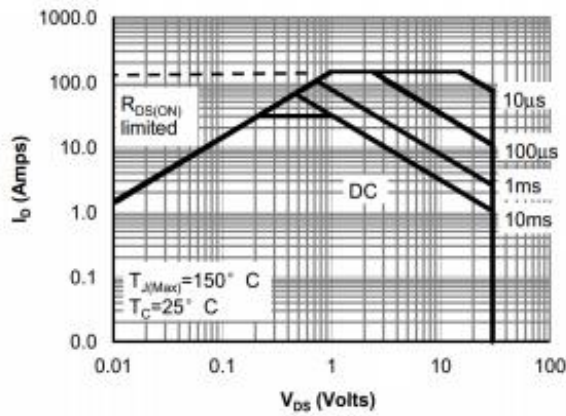


Figure 9: Maximum Forward Biased Safe Operating Area

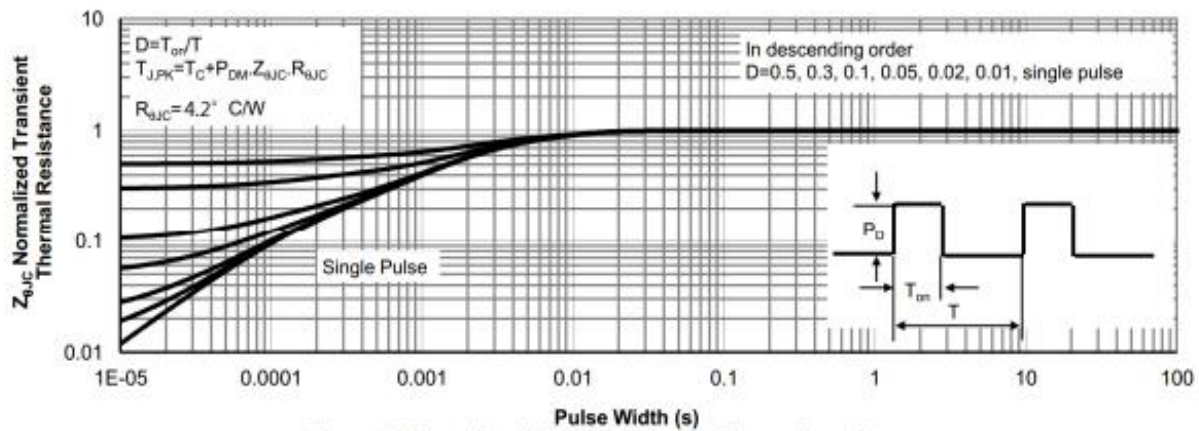
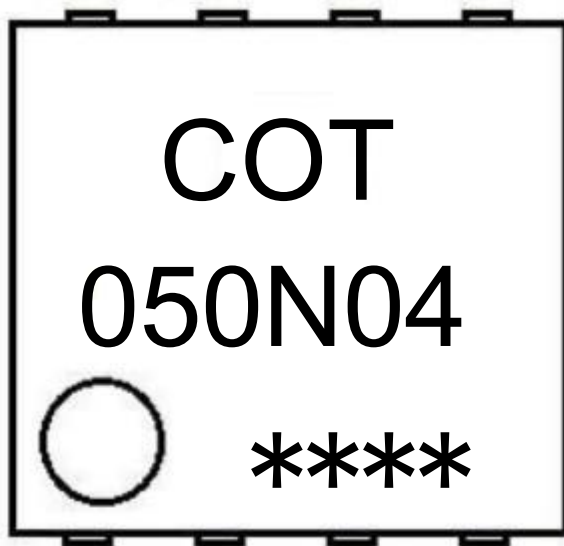


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

COT: Company Logo

050N04: Product Type.

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

Packaging SPEC.

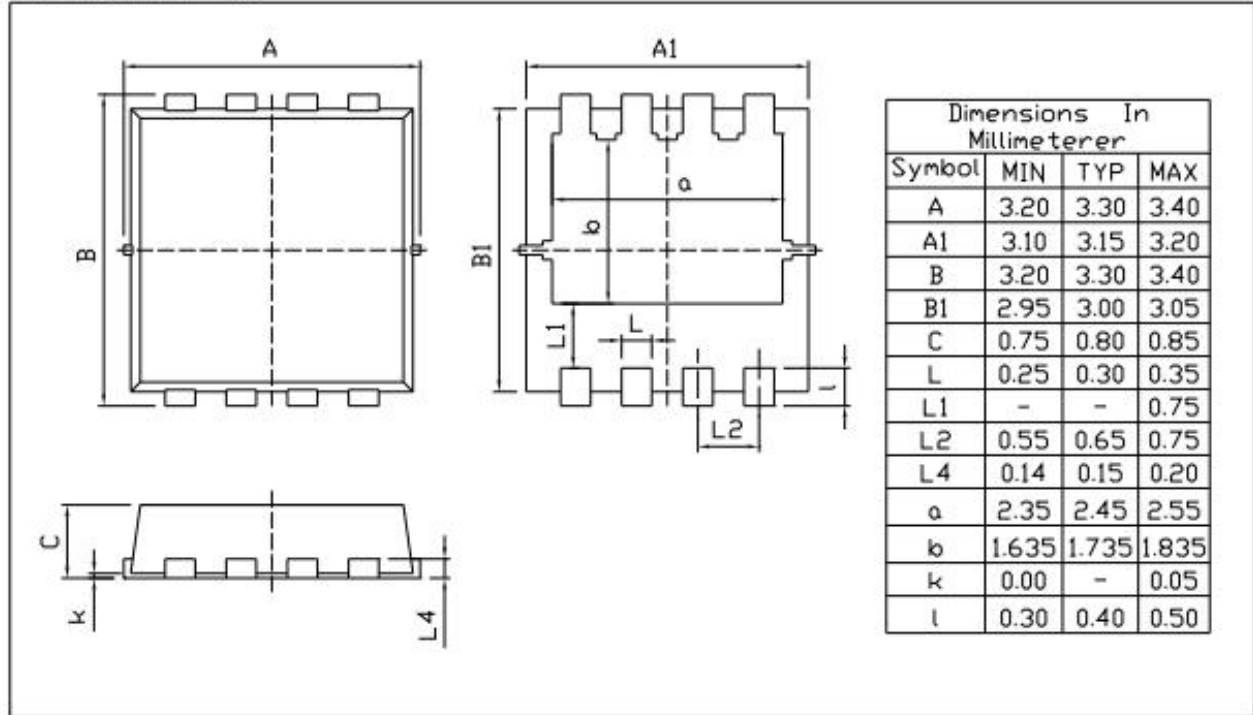
REEL INFORMATION

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

Package Outline Dimensions

PDFN3X3A-8L

Unit:mm



Rev.00 202011