

Descriptions

This 40V 45A N-channel enhancement mode field effect transistor in a PDFN 3×3A-8L plastic package.

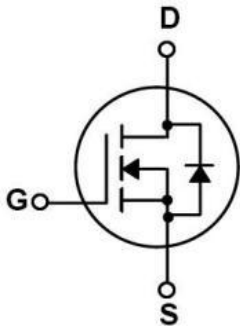
Features

- VDS (V) = 40V
- ID =45 A (VGS = ±20V)
- RDS(ON)@10V≤8mR(Typ.6.4mR)
- Halogen-free product

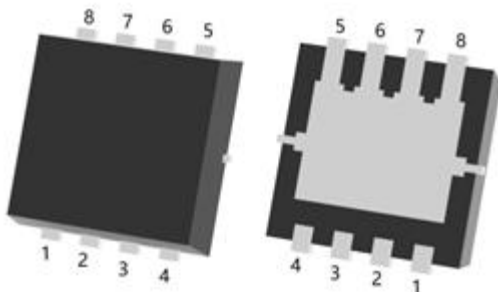
Applications

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

Equivalent Circuit



Pinning



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

Absolute Maximum Ratings(Ta=25°C)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	40	V
Drain Current		$I_D(T_C=25^\circ\text{C})$	45	A
Drain Current - Pulsed		I_{DM}	105	A
Gate-Source Voltage		V_{GSS}	± 20	V
Single Pulsed Avalanche Energy		E_{AS}	67.6	mJ
Avalanche Current		I_{AS}	13	A
Power Dissipation		$P_D(T_C=25^\circ\text{C})$	27	W
Operating and Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C
Junction-to-Ambient	$t \leq 10$	$R_{\theta JA}$	25	°C/W
Junction-to-Ambient	Steady-State		55	
Junction-to-Case	Steady-State		$R_{\theta JC}$	

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$	$I_D=250\mu A$	40	47		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40V$	$V_{GS}=0V$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$	$V_{DS}=0V$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$	$I_D=250\mu A$	1.0	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$	$I_D=20A$		6.4	8	m Ω
		$V_{GS}=4.5V$	$I_D=10A$		9	12	m Ω
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$	$I_S=1A$			1.2	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $f=1.0MHz$	$V_{GS}=0V$		850		pF
Output Capacitance	C_{oss}				115		
Reverse Transfer Capacitance	C_{rss}				30		
Gate resistance	R_g	$V_{GS}=0V$ $f=1MHz$	$V_{DS}=0V$		2.4		Ω
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V$ $I_D=15A$	$V_{DS}=20V$		21		nC
Total Gate Charge	$Q_{g(4.5V)}$				8.6		
Gate Source Charge	Q_{gs}				5.7		
Gate Drain Charge	Q_{gd}				3		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $R_L=1.18\Omega$	$V_{DS}=20V$ $R_{GEN}=3.0\Omega$		7.5		ns
Turn-On Rise Time	t_r				2.1		
Turn-Off Delay Time	$t_{d(off)}$				23		
Turn-Off Fall Time	t_f				3		

Electrical Characteristic Curve

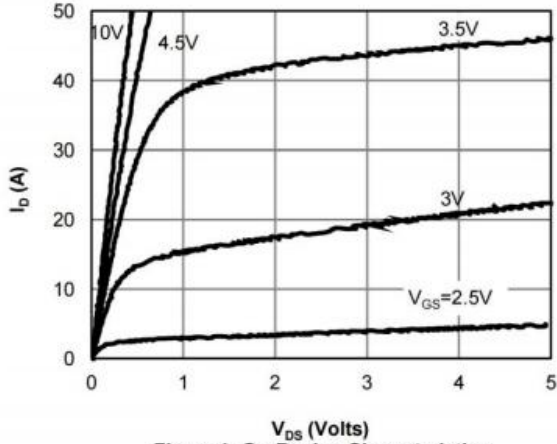


Figure 1: On-Region Characteristics

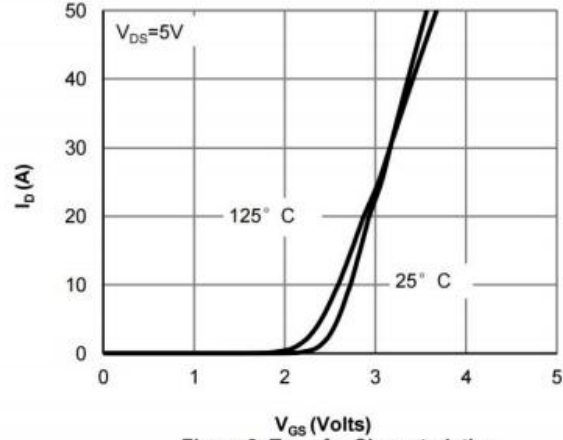


Figure 2: Transfer Characteristics

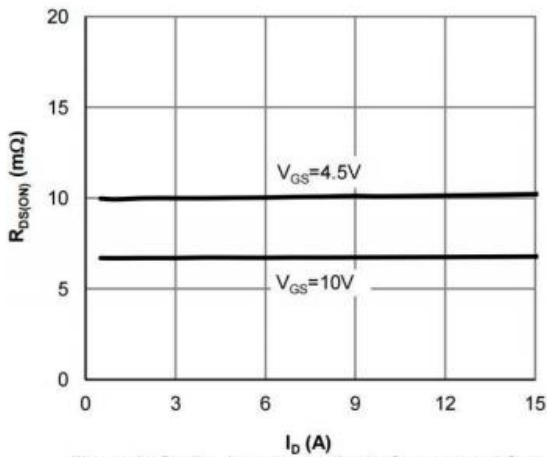


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

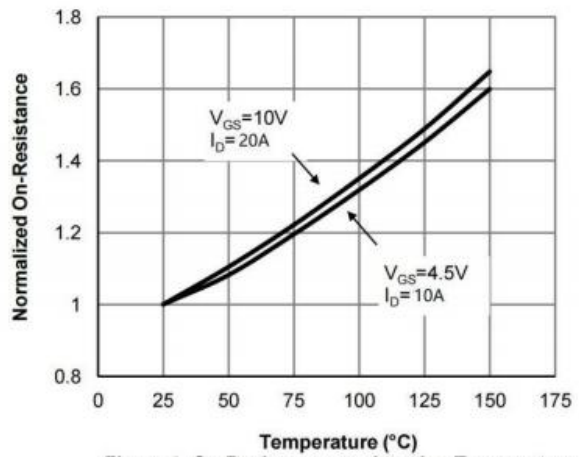


Figure 4: On-Resistance vs. Junction Temperature

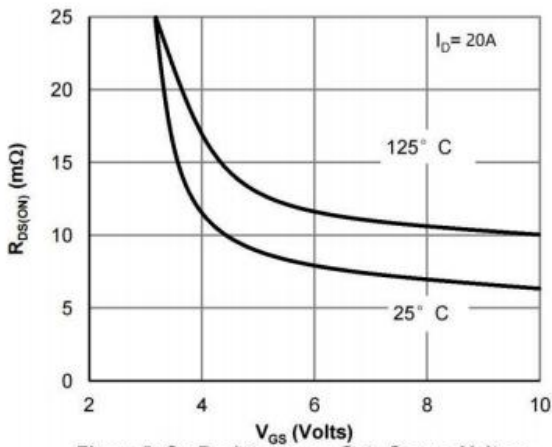


Figure 5: On-Resistance vs. Gate-Source Voltage

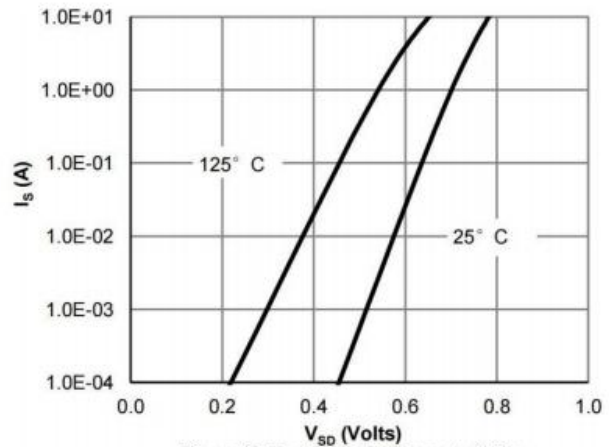


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

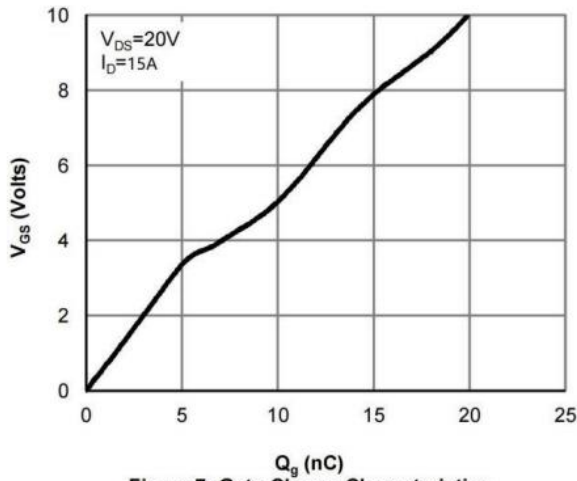


Figure 7: Gate-Charge Characteristics

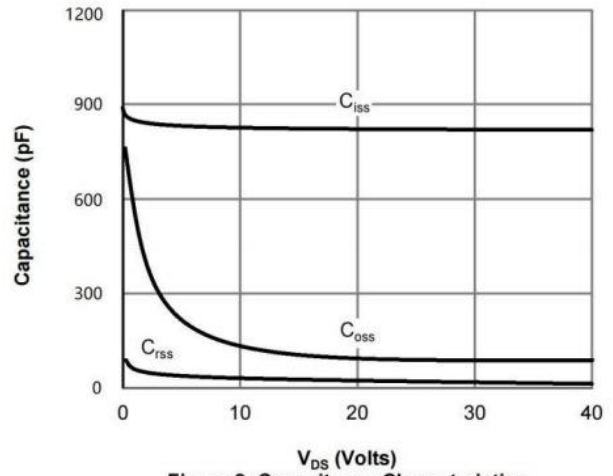


Figure 8: Capacitance Characteristics

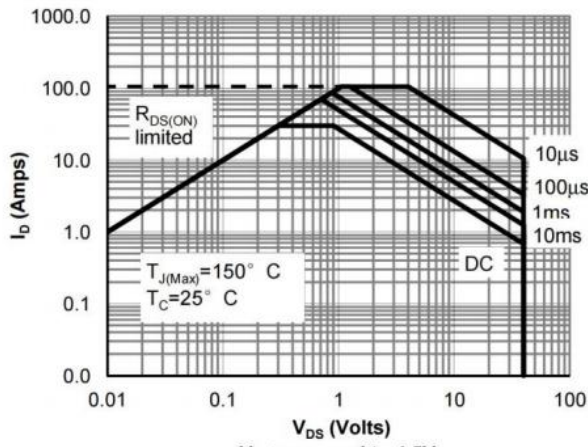


Figure 9: Maximum Forward Biased Safe Operating Area

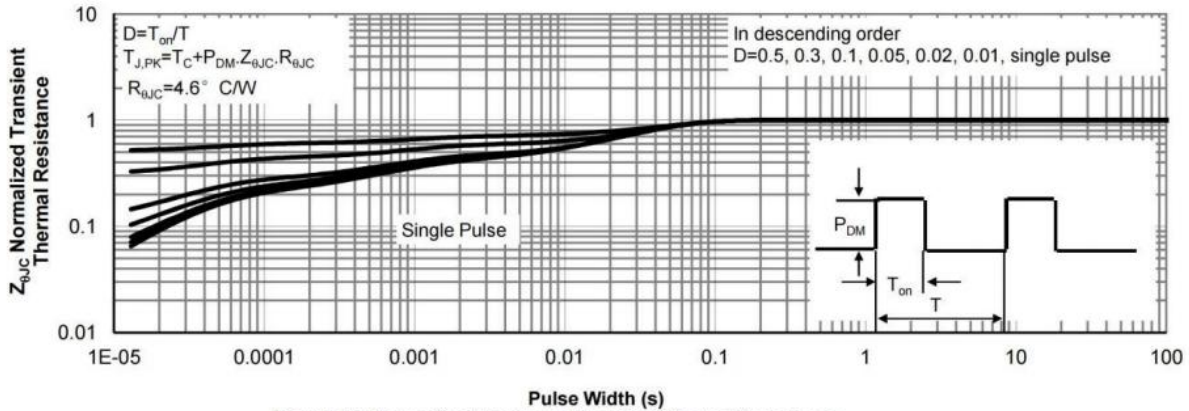
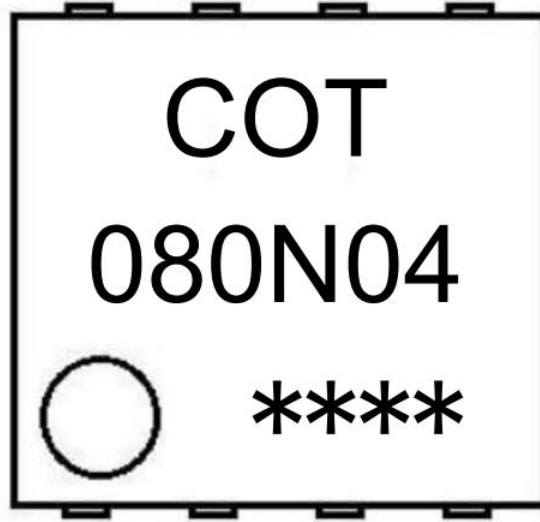


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

COT: Company Code.

080N04: Product Type Code

****: 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

