

**Description**

This 30V,40A N-Channel MOSFET in a DFN 3×3-8L Plastic Package.

**Features**

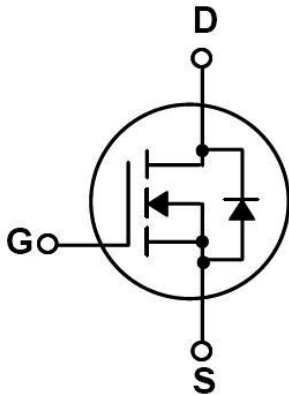
- $V_{DS}$  (V) = 30V
- $I_D$  =40 A ( $V_{GS} = \pm 20V$ )
- $R_{DS(ON)}@10V \leq 6mR$  (Typ.4.7mR)
- Halogen-Free Product

**Applications**

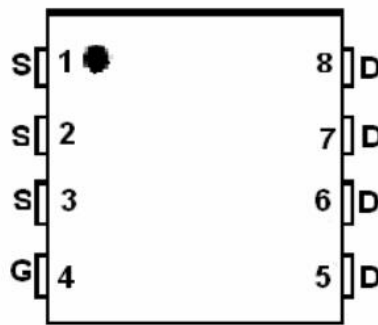
These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

$V_{DSS}$	$R_{DS(on)}$ Typ	$I_D$
30V	4.7mΩ	40A

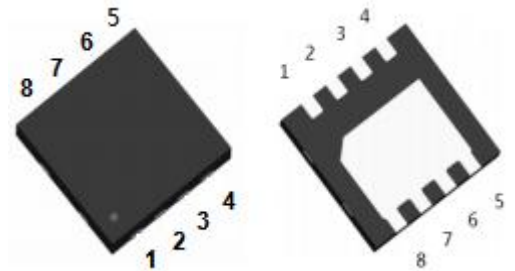
**Equivalent Circuit & Pinning**



Schematic diagram



Pin assignment



DFN3X3-8L

**Absolute Maximum Ratings(Ta=25°C)**

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		$V_{DSS}$	30	V
Drain Current		$I_D(T_c=25^\circ\text{C})$	40	A
Drain Current - Pulsed		$I_{DM}$	130	A
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Single Pulsed Avalanche Energy		$E_{AS}$	211	mJ
Avalanche Current		$I_{AS}$	23	A
Power Dissipation		$P_D(T_c=25^\circ\text{C})$	29	W
Operating and Storage Temperature Range		$T_J, T_{stg}$	-55 to 150	°C
Junction-to-Ambient	$t \leq 10$	$R_{\theta JA}$	40	°C/W
Junction-to-Ambient	Steady-State		75	
Junction-to-Case	Steady-State	$R_{\theta JC}$	4.2	

**Electrical Characteristics(Ta=25°C)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V$ $I_D=250\mu A$	30	32		V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V$ $V_{GS}=0V$			1	$\mu A$
Gate-Body Leakage Current Forward	$I_{GSS}$	$V_{GS}=\pm 20V$ $V_{DS}=0V$			$\pm 0.1$	$\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=20A$		4.7	6	m $\Omega$
		$V_{GS}=4.5V$ $I_D=10A$		7.1	9	m $\Omega$
Drain-Source Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V$ $I_S=10A$		0.75	1.2	V
Input Capacitance	$C_{iss}$	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		2090		pF
Output Capacitance	$C_{oss}$			790		
Reverse Transfer Capacitance	$C_{rss}$			634		
Gate resistance	$R_g$	$V_{GS}=0V$ $V_{DS}=0V$ $f=1MHz$		1.9		$\Omega$
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V$ $V_{DS}=15V$ $I_D=18A$		33		nC
Total Gate Charge	$Q_{g(4.5V)}$			16		
Gate Source Charge	$Q_{gs}$			5.2		
Gate Drain Charge	$Q_{gd}$			6.2		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10V$ $V_{DS}=15V$ $R_L=0.83\Omega$ $R_{GEN}=3\Omega$		6		ns
Turn-On Rise Time	$t_r$			4		
Turn-Off Delay Time	$t_{d(off)}$			33		
Turn-Off Fall Time	$t_f$			7.5		

Electrical Characteristic Curve

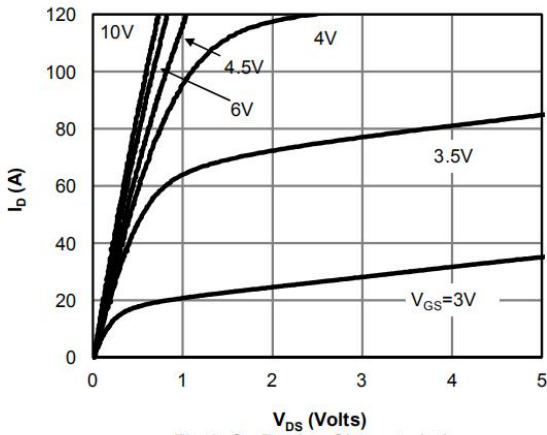


Fig 1: On-Region Characteristics

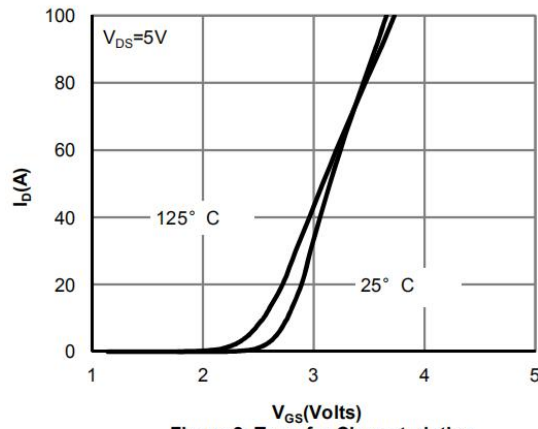


Figure 2: Transfer Characteristics

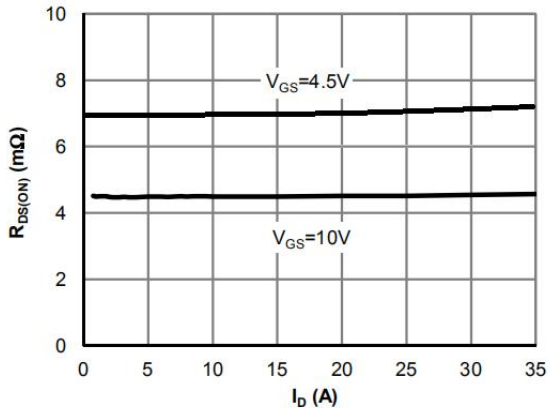


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

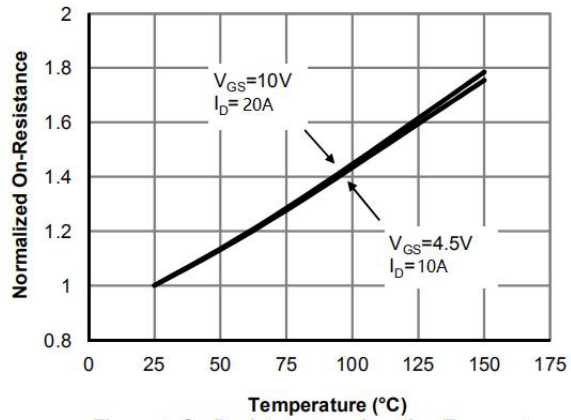


Figure 4: On-Resistance vs. Junction Temperature

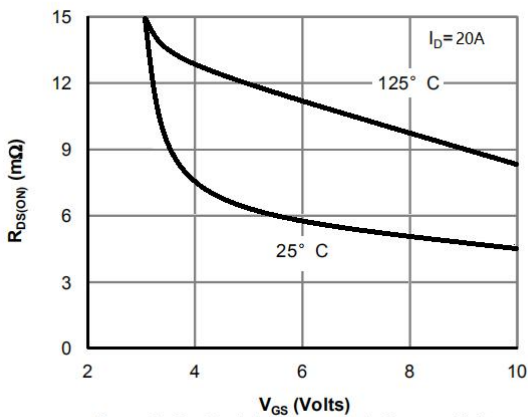


Figure 5: On-Resistance vs. Gate-Source Voltage

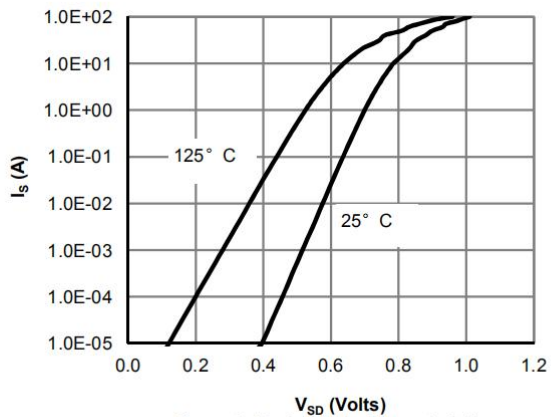


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

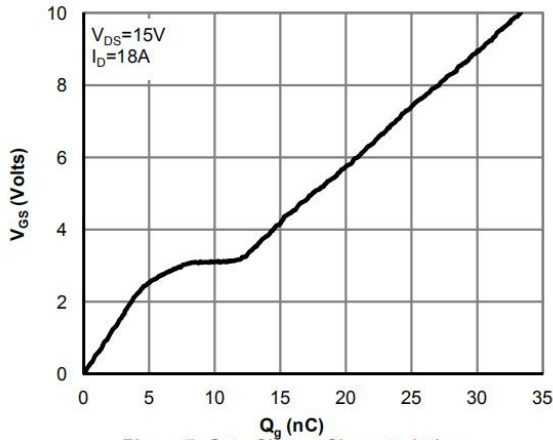


Figure 7: Gate-Charge Characteristics

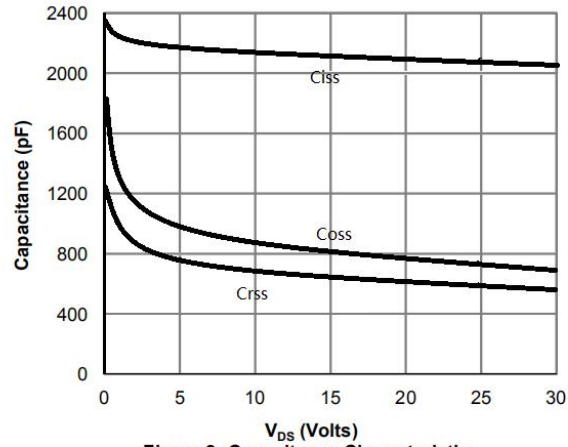


Figure 8: Capacitance Characteristics

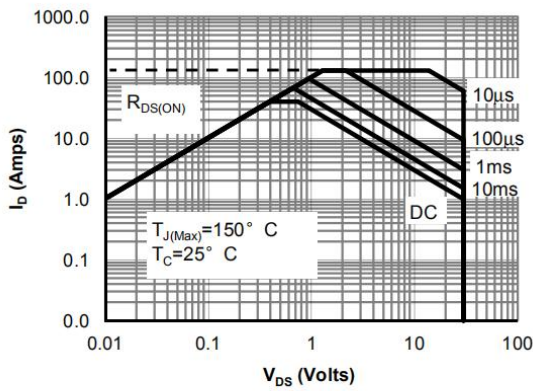


Figure 9: Maximum Forward Biased Safe Operating Area

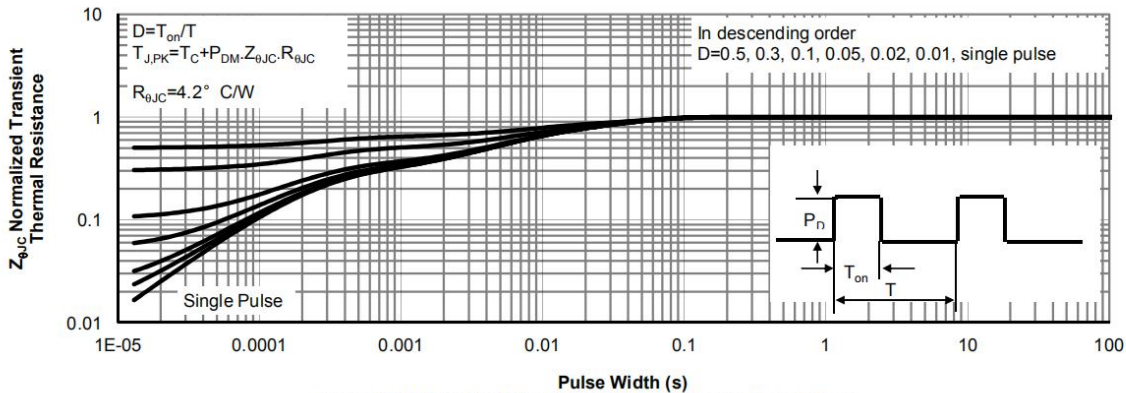
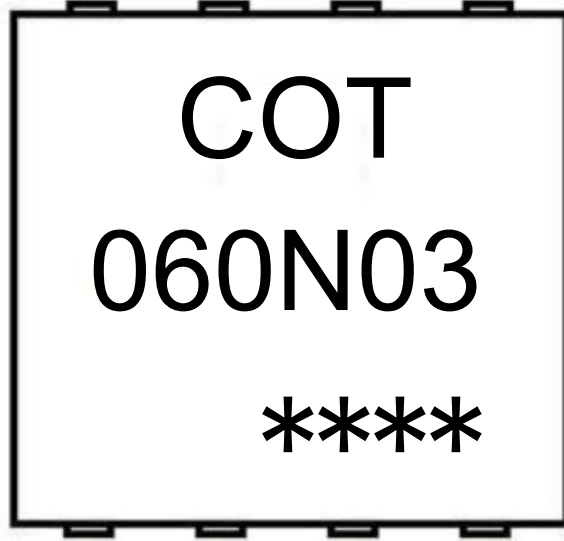


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

COT: Company Logo

060N03: Product Type.

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

Packaging SPEC.

REEL INFORMATION

Package Type	Units					Dimension (unit: mm <sup>3</sup> )		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
DFN3×3-8L	5,000	2	10,000	6	60,000	13" ×12	360×360×50	380×335×366

Package Outline Dimensions

DFN3X3A-8L

Unit:mm

