

Description

This 100V 90A N-Channel MOSFET in a PDFN5 ×6 Plastic Package.

Features

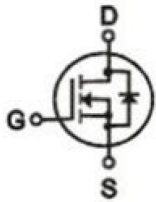
- Low $R_{DS(ON)}$ to minimize conductive loss
- Low Gate Charge for fast switching
- Low Thermal resistance
- Halogen-Free Product

Applications

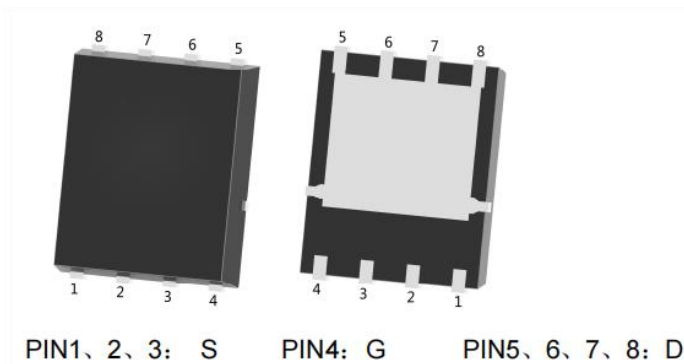
- For boost converters and synchronous rectifiers for consumer
- Telecom
- Industrial power supplies and LED backlighting.

V_{DSS}	$R_{DS(on)}$ Typ	I_D
100V	7mΩ	90A

Equivalent Circuit



Pinning



Pin	极性
1	S
2	S
3	S
4	G
5	D
6	D
7	D
8	D

Marking

See Marking Instructions

Absolute Maximum Ratings(Ta=25°C)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Drain Current - Continuous		I_D	90	A
Drain Current – Pulsed		I_{DM}	200	A
Gate-Source Voltage		V_{GS}	±20	V
Power Dissipation		$P_D(T_c=25^\circ\text{C})$	113.5	W
Single Pulse Avalanche Energy(L=0.5mH)		E_{AS}	60	mJ
Avalanche Current(L=0.5mH)		I_{AS}	16	A
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C
Thermal resistance, junction - ambient	$t \leq 10s$	$R_{\theta JA}$	20	°C/ W
	Steady-State		50	
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	1.1	

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu A$, $V_{GS}=0V$	100	111		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V$, $V_{GS}=0V$			1.0	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0V$, $V_{GS}=\pm 20V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=250\mu A$	1	2	3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V$, $I_D=20A$		5.9	7	m Ω
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V$, $I_D=10A$		8.3	10	m Ω
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		2700		pF
Output Capacitance	C_{oss}			1000		
Reverse Transfer Capacitance	C_{rss}			70		
Gate resistance	R_g	$V_{GS}=0V$ $V_{DS}=0V$ $f=1MHz$		1.5		Ω
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V$, $V_{DS}=50V$ $I_D=20A$		65		nC
Total Gate Charge	$Q_{g(4.5V)}$			31		
Gate Source Charge	Q_{gs}			11		
Gate Drain Charge	Q_{gd}			10		
Turn-On Delay Time	$t_{D(on)}$	$V_{GS}=10V$, $V_{DS}=50V$, $R_L=2.5\Omega$, $R_{GEN}=3\Omega$		10		ns
Turn-On Rise Time	t_r			6		
Turn-Off Delay Time	$t_{D(off)}$			51		
Turn-Off Fall Time	t_f			9		

Electrical Characteristic Curve

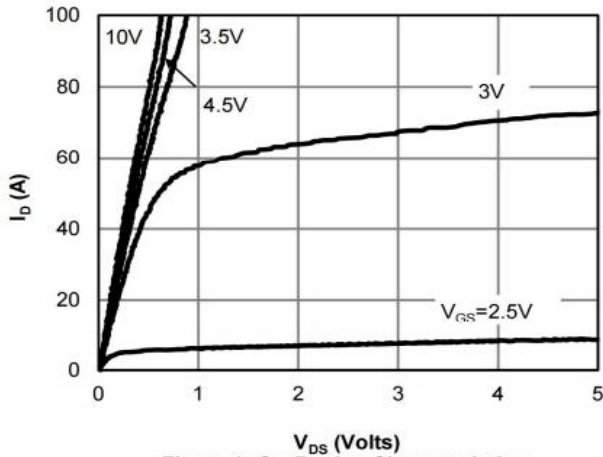


Figure 1: On-Region Characteristics

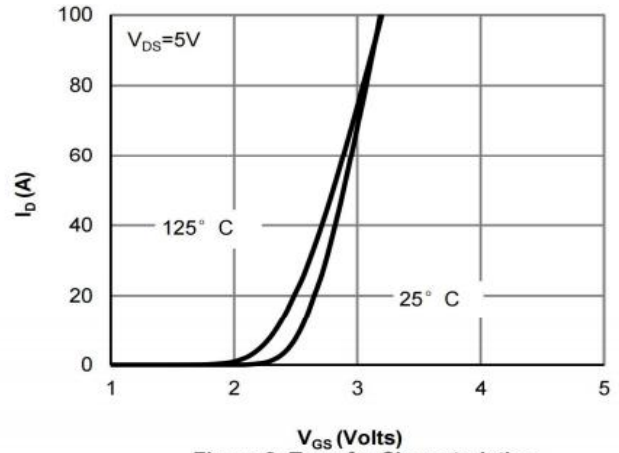


Figure 2: Transfer Characteristics

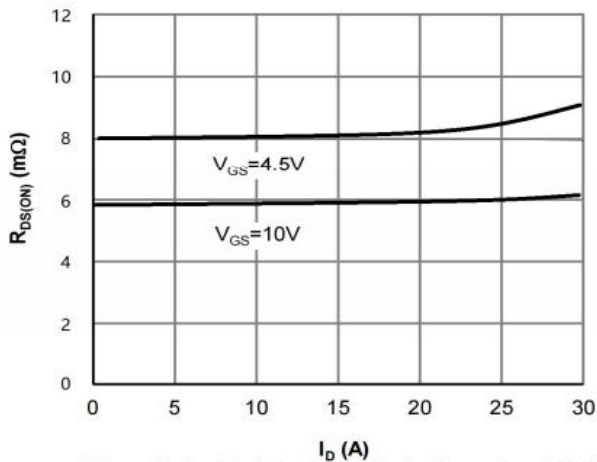


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

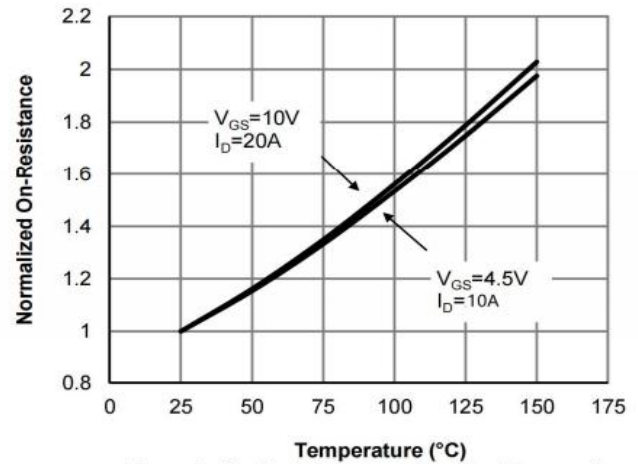


Figure 4: On-Resistance vs. Junction Temperature

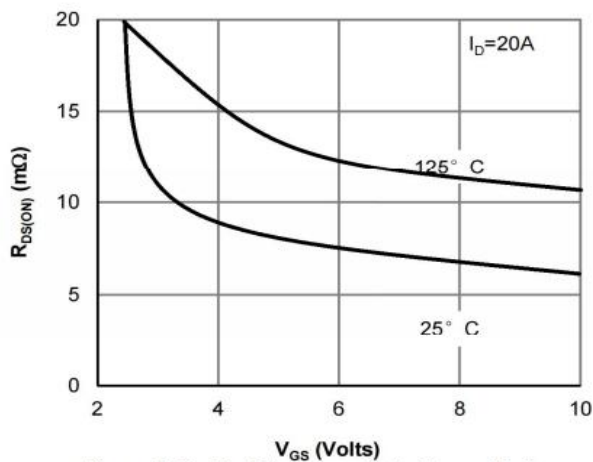


Figure 5: On-Resistance vs. Gate-Source Voltage

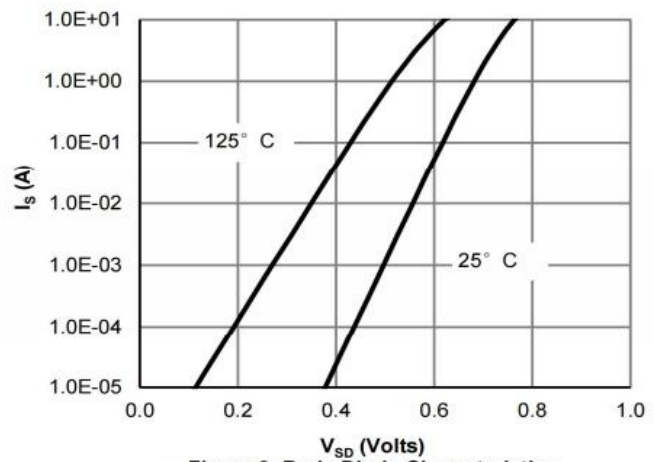


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

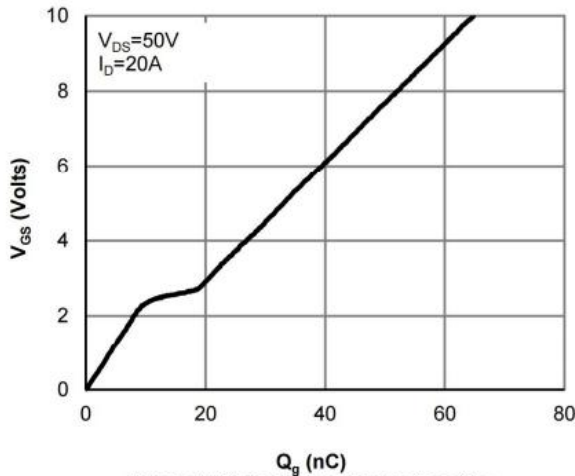


Figure 7: Gate-Charge Characteristics

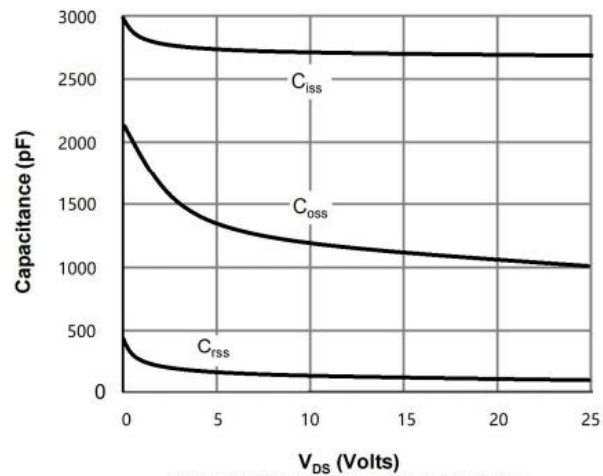


Figure 8: Capacitance Characteristics

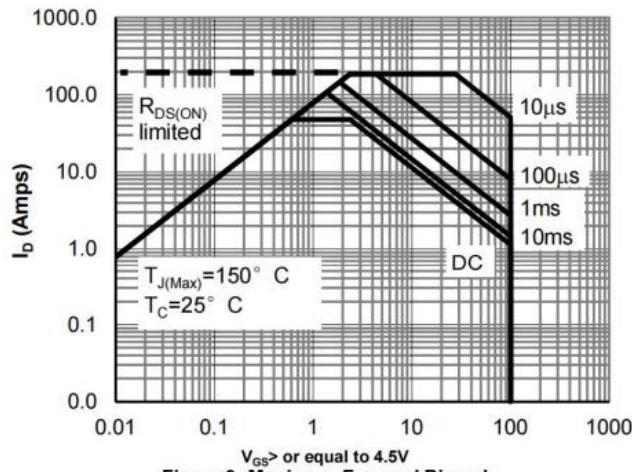


Figure 9: Maximum Forward Biased Safe Operating Area

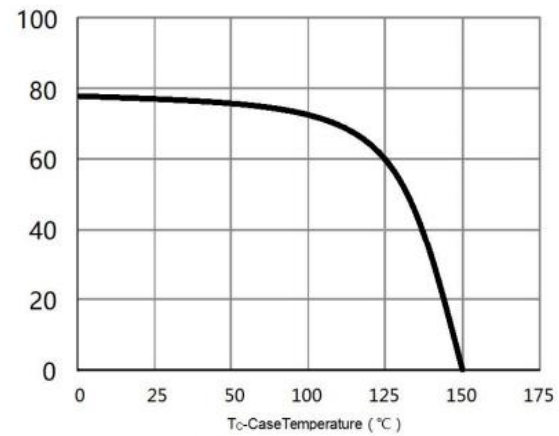


Figure 10: Maximum Continuous Drain Current Vs Case Temperature

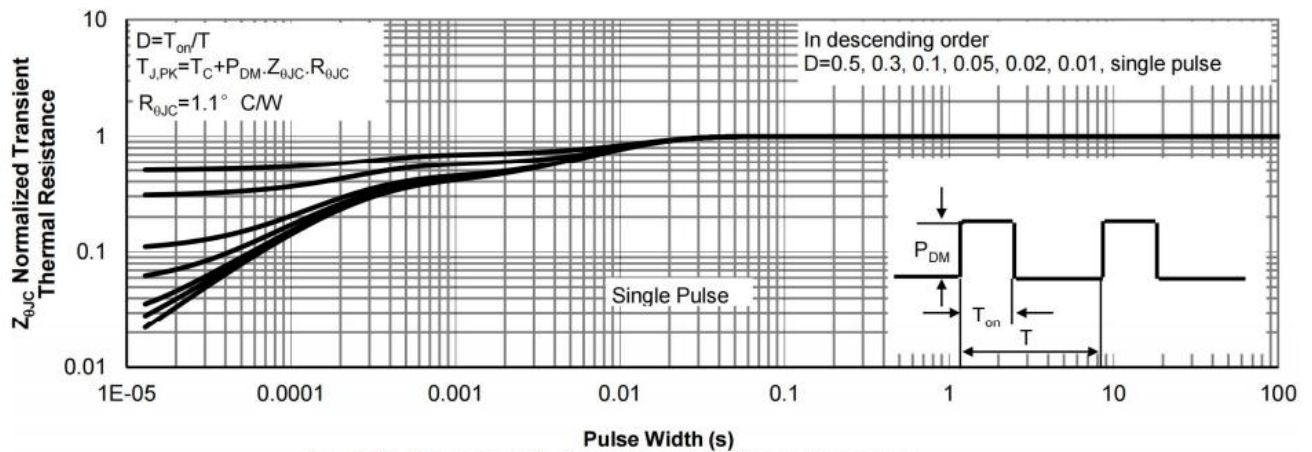
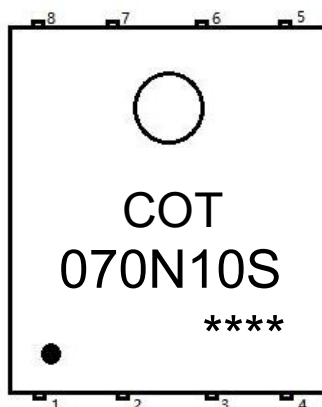


Figure 11: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

COT: Company Logo

070N10S: Product Type.

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

Packaging SPEC.

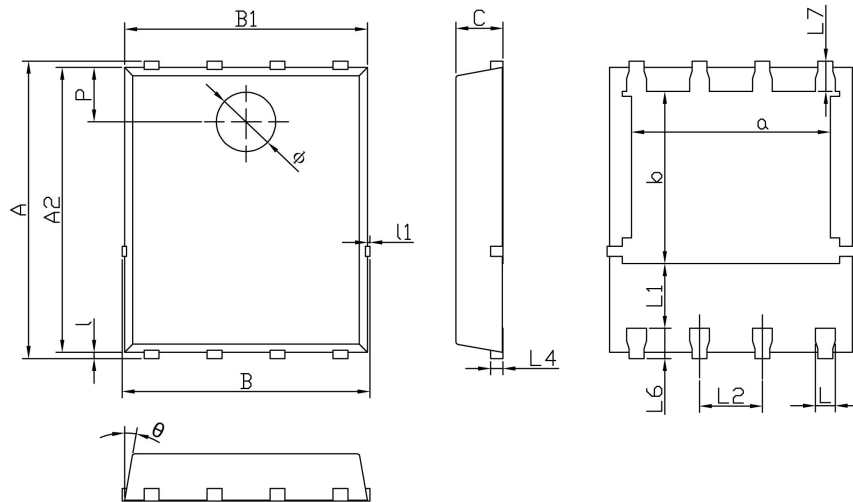
REEL INFORMATION

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
PDFN5×6	5000	2	10000	6	60000	13"×12	360×360×50	380×335×366

Package Outline Dimensions

PDFN5 X6

Unit:mm



Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	5.90	6.00	6.10
a	3.91	4.01	4.11
A2	5.70	5.75	5.80
B	4.90	5.00	5.10
b	3.37	3.47	3.57
B1	4.80	4.90	5.00
C	0.90	0.95	1.00
L	0.35	0.40	0.45
l	0.06	0.13	0.20
L1	1.10	-	-
l1	-	-	0.10
L2	1.17	1.27	1.37
L4	0.21	0.26	0.34
L6	0.51	0.61	0.71
L7	0.51	0.61	0.71
P	1.00	1.10	1.20
θ	8°	10°	12°
φ	1.10	1.20	1.30

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