

## 5A 500V N Channel MOSFET

### Features

- $V_{DS} = 500V$
- $I_D = 5A @V_{GS} = 10V$
- $R_{DS(ON)} (Typ) = 1.5\Omega @V_{GS} = 10V$

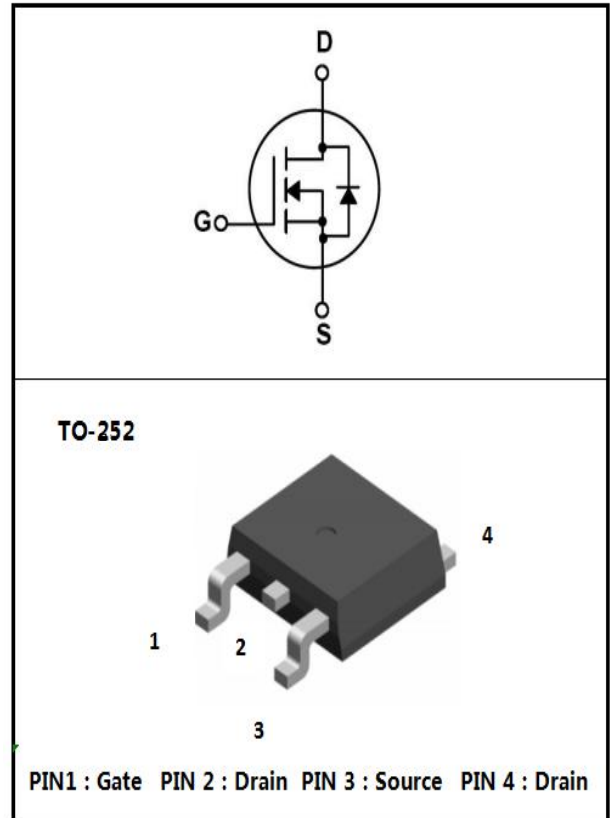
### Applications

- Power Supply
- PFC
- High Current, High Speed Switching

### Descriptions

These N-channel MOSFET are produced using advanced plane MOSFET Technology, which provides Low on-state resistance, high switching performance and excellent quality.

These devices are suitable device for SMPS, high Speed switching and general purpose applications.



**Absolute Maximum Ratings(Ta=25°C)**

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DSS}$	500	V
Drain Current	$I_D(T_C=25^\circ\text{C})$	5	A
Drain Current - Pulsed	$I_{DM}$	16	A
Gate-Source Voltage	$V_{GSS}$	$\pm 30$	V
Avalanche Current	$I_{AR}$	4	A
Single Pulsed Avalanche Energy	$E_{AS}$	300	mJ
Repetitive Avalanche Energy	$E_{AR}$	4.8	mJ
Power Dissipation ( $T_C=25^\circ\text{C}$ )	$P_D$	48	W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55to150	$^\circ\text{C}$
Thermal resistance,Junction to Ambient	$R_{\theta JA}$	100	$^\circ\text{C}/\text{W}$
Thermal resistance,Junction to Case	$R_{\theta JC}$	2.6	$^\circ\text{C}/\text{W}$

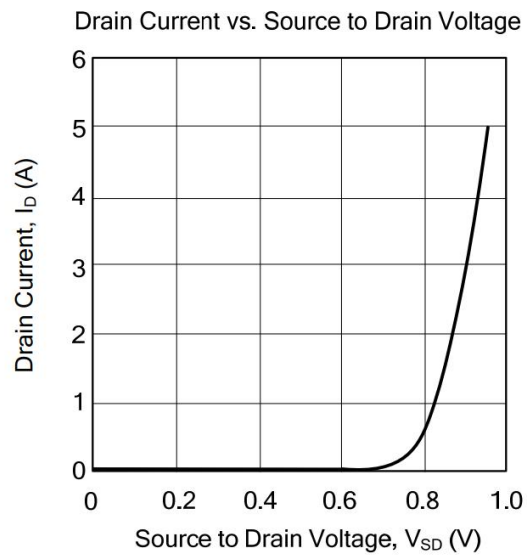
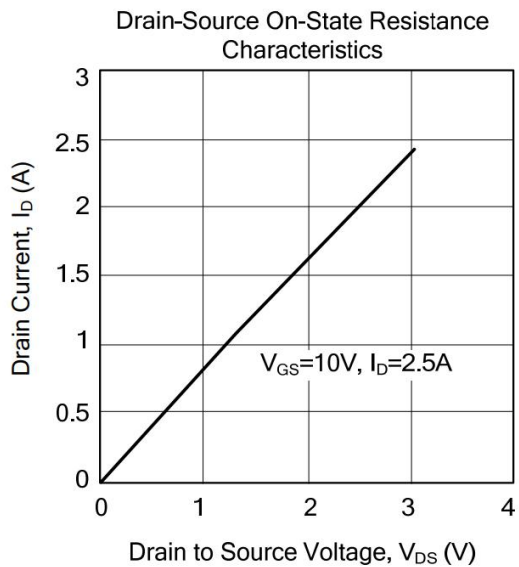
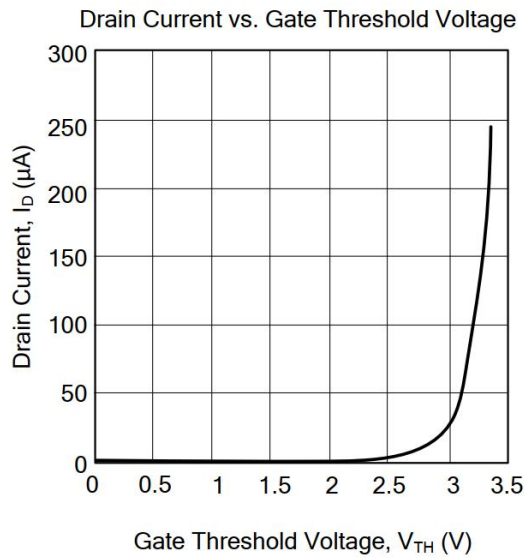
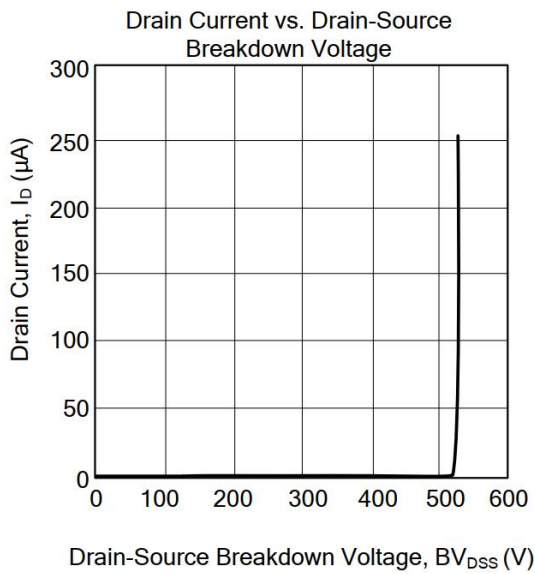
**Electrical Characteristics(Ta=25°C)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V$ $I_D=250\mu A$	500			V	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=500V$ $V_{GS}=0V$			1	$\mu A$	
		$V_{DS}=400V$ $T_C=125^\circ\text{C}$			10	$\mu A$	
Gate-Body Leakage Current Forward	$I_{GSS}$	$V_{GS}=\pm 30V$ $V_{DS}=0V$			$\pm 0.1$	$\mu A$	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2		4	V	
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=2.5A$		1.5	1.6	$\Omega$	
Input Capacitance	$C_{iss}$	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0\text{MHz}$		570		pF	
Output Capacitance	$C_{oss}$				150		pF
Reverse Transfer Capacitance	$C_{rss}$				10		pF
Total Gate Charge	$Q_G$	$V_{DS}=400V, I_D=5.0A,$ $V_{GS}=10V$		25		nC	
Gate-Source Charge	$Q_{GS}$			6			
Gate-Drain Charge	$Q_{GD}$			8			

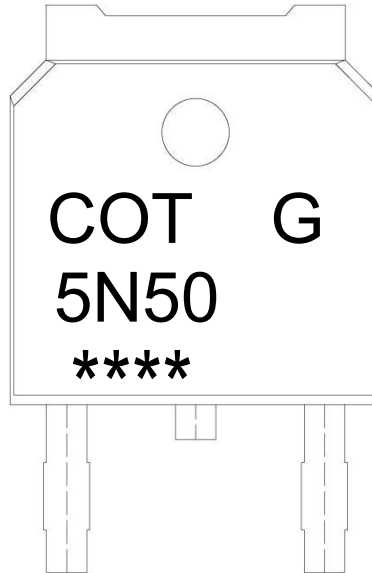
**Electrical Characteristics(Ta=25°C)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=250V$ $I_D=5.0A$ $R_G=25\Omega$		32		ns
Turn-On Rise Time	$t_r$			55		
Turn-Off Delay Time	$t_{d(off)}$			150		
Turn-Off Fall Time	$t_f$			73		
Maximum Continuous Drain-Source Diode Forward Current	$I_S$				5	A
Maximum Pulsed Drain-Source Diode Forward Current	$I_{SM}$				20	A
Drain-Source Diode Forward Voltage	$V_{SD}$	$V_{GS} = 0V, I_S = 5.0A$			1.4	V
Reverse Recovery Time	$t_{rr}$	$V_{GS} = 0V, I_S = 5.0A,$ $dI_F/dt = 100A/\mu s$		350		nS
Reverse Recovery Charge	$Q_{rr}$			1600		nC

Electrical Characteristic Curve



Marking Instructions



Note:

COT: Company Logo

G: Halogen Free

5N50: Product Type.

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

Packaging SPEC.

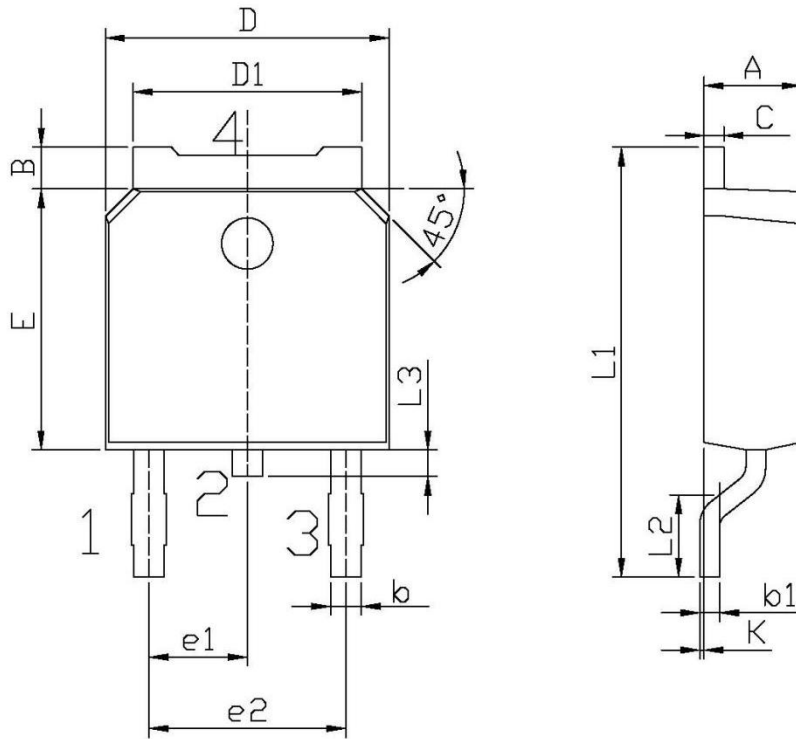
REEL INFORMATION

Package Type	Units					Dimension		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel unit: mm	Inner Box unit: mm <sup>3</sup>	Outer Box unit: mm <sup>3</sup>
TO-252	2,500	2	5,000	5	25,000	13" x16	360x360x50	385x257x392

TUBE INFORMATION

Package Type	Units					Dimension		
	Units/Tube	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Tube unit: mm <sup>3</sup>	Inner Box unit: mm <sup>3</sup>	Outer Box unit: mm <sup>3</sup>
TO-252	75	48	3,600	5	18,000	526x20.5x5.25	555x164x50	575x290x180

Package Outline Dimensions



单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.70	0.90	e2	4.43	4.73
b1	0.45	0.55	L1	9.85	10.35
C	0.45	0.55	L2	1.70	2.00
D	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	K	0.00	0.10

TO-252