

8A 500V N Channel MOSFET

Features

- $V_{DS} = 500V$
- $I_D = 8A @ V_{GS} = 10V$
- $R_{DS(ON)} (Typ) = 0.7\Omega @ V_{GS} = 10V$

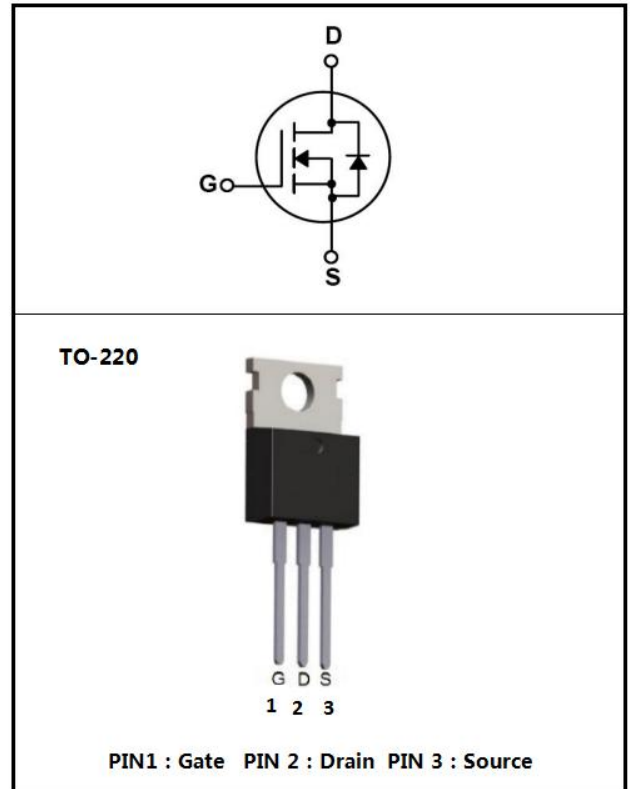
Applications

- 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_{DS}	500	V
Drain Current	$I_D(T_C=25^\circ\text{C})$	8.0	A
	$I_D(T_C=100^\circ\text{C})$	5.1	A
Pulsed Drain Current	I_{DM}	32	A
Gate-Source Voltage	V_{GS}	± 30	V
Avalanche Current	I_{AR}	8	A
Single Pulsed Avalanche Energy	E_{AS}	320	mJ
Repetitive Avalanche Energy	E_{AR}	13.4	mJ
Total Power Dissipation	$P_D(T_C=25^\circ\text{C})$	140	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C
Thermal resistance,Junction to Ambient	$R_{\theta JA}$	62.5	°C/W
Thermal resistance,Junction to Case	$R_{\theta JC}$	0.9	°C/W

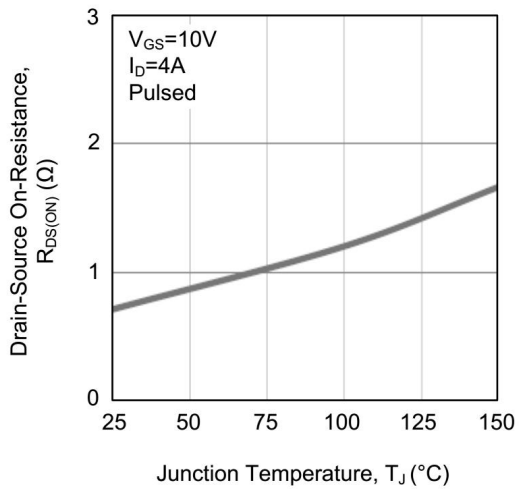
Electrical Characteristics(Ta=25°C)

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}	$V_{DS}=500V$ $V_{GS}=0V$			10	μA
		$V_{DS}=400V$ $T_C=125^\circ\text{C}$			100	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 30V$ $V_{DS}=0V$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=4.0A$		0.70	0.85	Ω
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0\text{MHz}$		1570		pF
Output Capacitance	C_{oss}			150		
Reverse Transfer Capacitance	C_{rss}			15		
Total Gate Charge	Q_G	$V_{DS}=400V,$ $I_D=8.0A,$ $V_{GS}=10V$		25		nC
Gate-Source Charge	Q_{GS}			6		
Gate-Drain Charge	Q_{GD}			8		

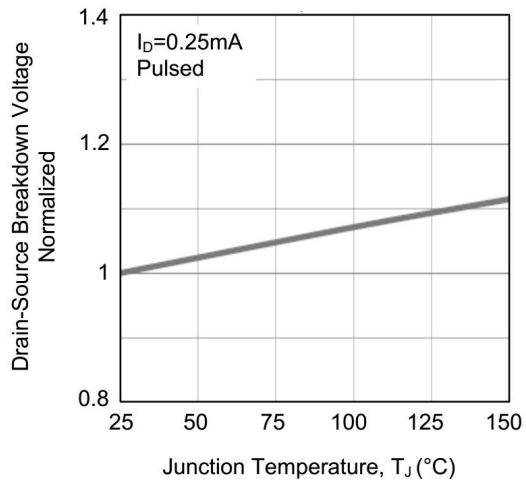
Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=250V$ $I_D=8.0A$ $R_G=25\Omega$		15		ns
Turn-On Rise Time	t_r			23		
Turn-Off Delay Time	$t_{d(off)}$			75		
Turn-Off Fall Time	t_f			32		
Maximum Continuous Drain-Source Diode Forward Current	I_S				8	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				32	A
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 8.0A$			1.4	V
Reverse Recovery Time	t_{rr}	$V_{GS} = 0V, I_S = 8.0A,$ $di_F/dt = 100 A/\mu s$		295		nS
Reverse Recovery Charge	Q_{rr}			6200		nC

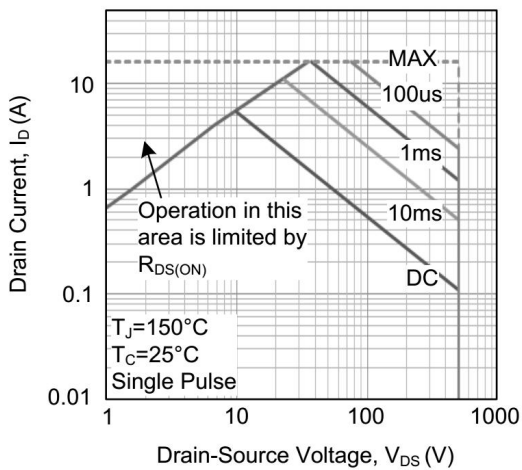
Electrical Characteristic Curve



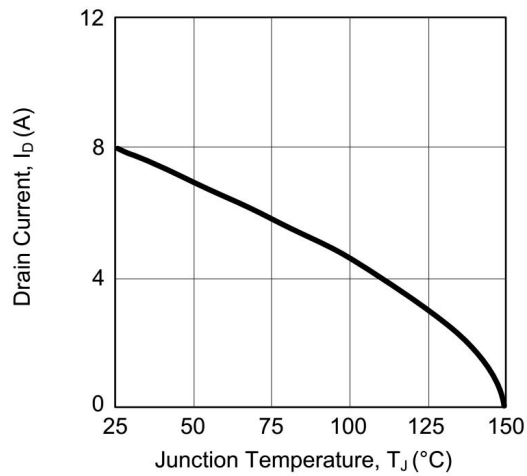
1. Drain-Source On-Resistance vs. Junction Temperature



2. Breakdown Voltage vs. Junction Temperature

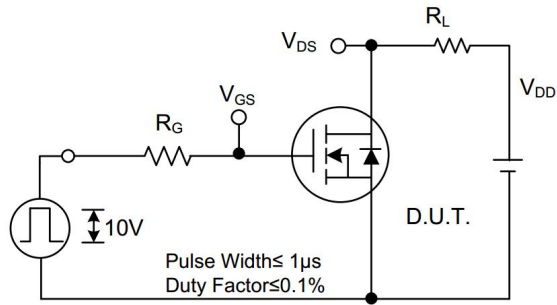


3. Safe Operating Area

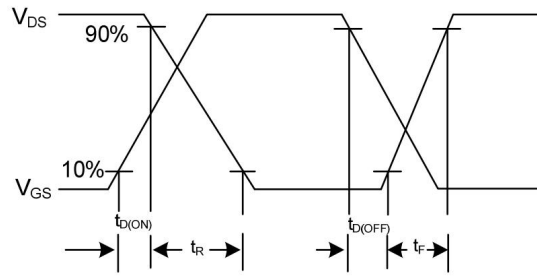


4. Drain Current vs. Junction Temperature

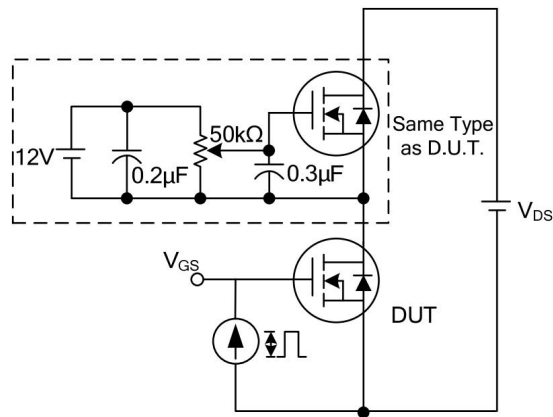
Test Circuits and Waveforms



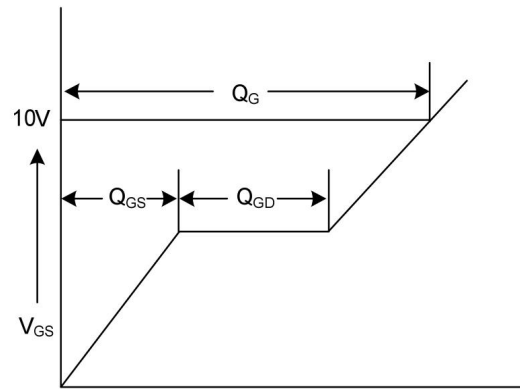
Switching Test Circuit



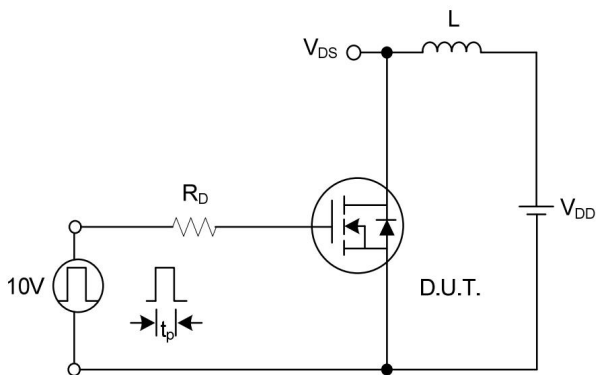
Switching Waveforms



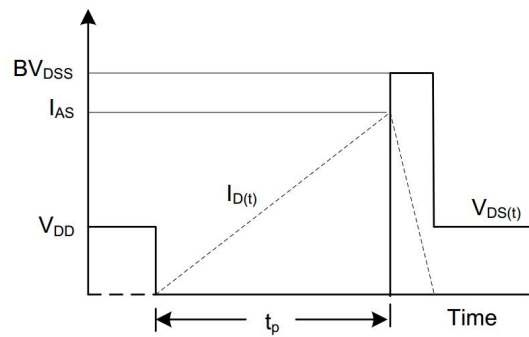
Gate Charge Test Circuit



Gate Charge Waveform

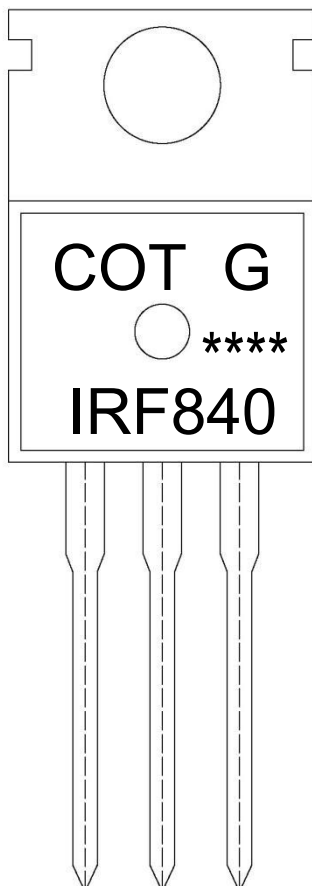


Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

Marking Instructions



Note:

COT: Company Logo

G: Halogen Free

IRF840: Product Type.

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

Packaging SPEC.

REEL INFORMATION

Package Type	Units					Dimension (unit: mm ³)		
	Units/Bag	Bags/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Bag	Inner Box	Outer Box
TO-220	200	10	2,000	5	10,000	135×190	237×172×102	560×245×195

TUBE INFORMATION

Package Type	Units					Dimension (unit: mm ³)		
	Units/Tube	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Tube	Inner Box	Outer Box
TO-220	50	20	1,000	5	5,000	532×31.4×5.5	555×164×50	575×290×180

Package Outline Dimensions

TO-220

单位: mm

