Descriptions

This is 500V 20A N-CHANNEL MOSFET in a TO-3P Plastic Package

Features

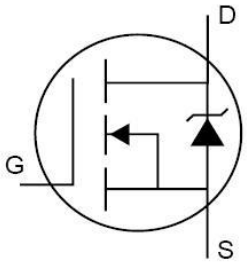
- Low gate charge
- Fast switching capability
- Avalanche energy specified
- Improved dv/dt capability

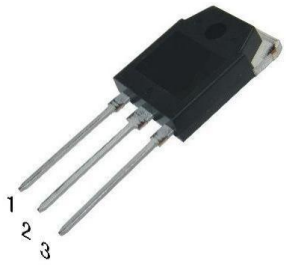
Parameter	Value	Unit
V_{DSS}	500	V
$R_{DS(ON)MAX}$.V_{GS}=10V	0.26	Ω
I_D	20	A

Applications

- Designed for high voltage
- high speed power switching applications
- high efficiency switched mode power supplies
- active power factor correction

Equivalent Circuit & Pinning





TO-3P PIN1： Gate PIN 2： Drain PIN 3： Source

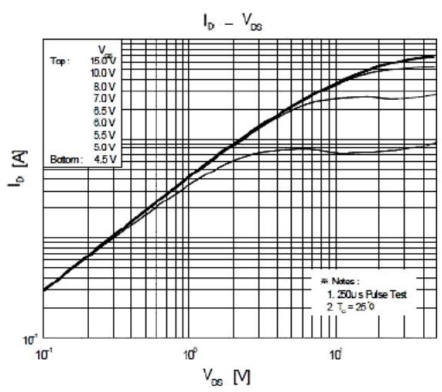
Absolute Maximum Ratings(Ta=25℃)

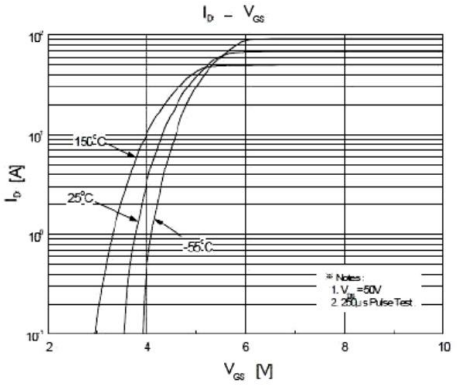
Parameter	Symbol	Rating	Unit
Drain-to-Source Breakdown Voltage	V_{DSS}	500	V
Continuous Drain Current	I_D(Tc=25℃)	20	A
Continuous Drain Current	I_D(Tc=100℃)	13	A
Drain Current Pulsed	I_{DP}	80	A
Gate-to-Source Voltage	V_{GSS}	±30	V
Repetitive Avalanche Energy	E_{AR}	28	mJ
Single Pulse Avalanche Energy	E_{AS}	1110	mJ
Peak Diode Recovery dv/dt	dv/dt	4.5	V/ns
Power Dissipation	P_D(Tc=25℃)	280	W
Junction Temperature Range	T_j	150	℃
Storage Temperature Range	T_{stg}	-55～150	℃
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	40	℃/W
Thermal Resistance Junction-Case	$R_{\theta JC}$	0.44	℃/W

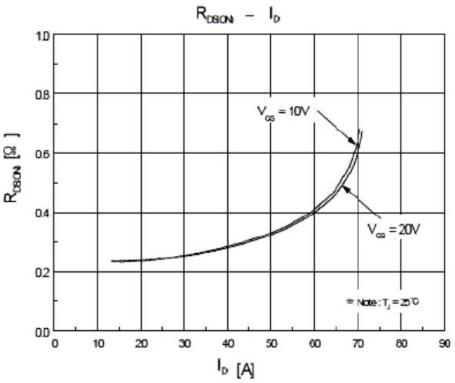
Electrical Characteristics(Ta=25℃)

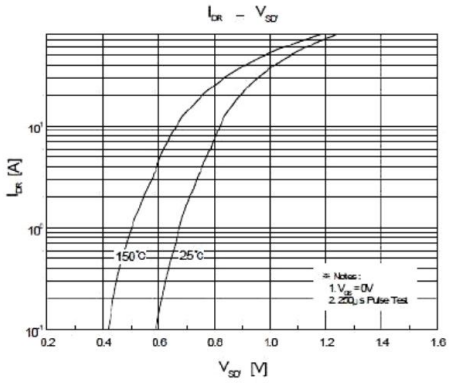
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	V_{DSS}	V_{GS}=0V I_D=250μA	500			V
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=500V V_{GS}=0V			1.0	μA
		V_{DS}=400V T_C=125℃			10	
Gate-to-Source Forward Leakage	I_{GSS}	V_{GS}=±30V V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	2.0		5.0	V
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=10A		0.21	0.26	Ω
Diode Forward Voltage	V_{SD}	V_{GS}=0V I_{SD}=20A			1.5	V
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1.0MHz		2700		pF
Output Capacitance	C_{oss}			400		
Reverse Transfer Capacitance	C_{rss}			40		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=250V I_D=20A R_G=2.5Ω		100		ns
Rise Time	t_r			400		
Turn-Off Delay Time	$t_{d(off)}$			100		
Fall Time	t_f			100		
Total Gate Charge	Q_g	V_{DS}=400V I_D=20A V_{GS}=10V		70		nC
Gate-Source Charge	Q_{gs}			18		
Gate-Drain Charge	Q_{gd}			35		

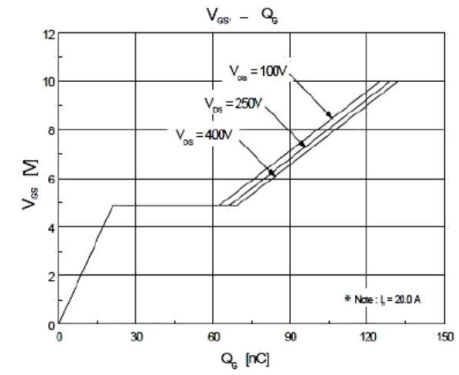
Electrical Characteristic Curve

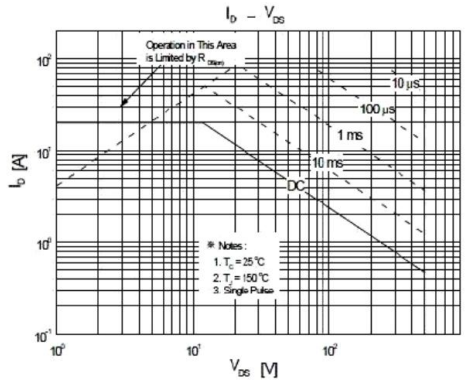


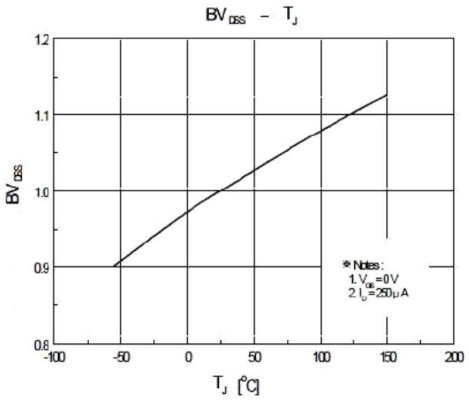


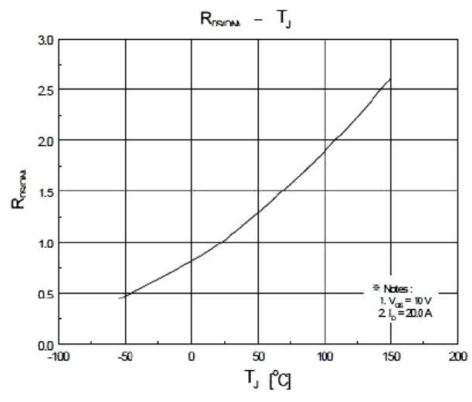




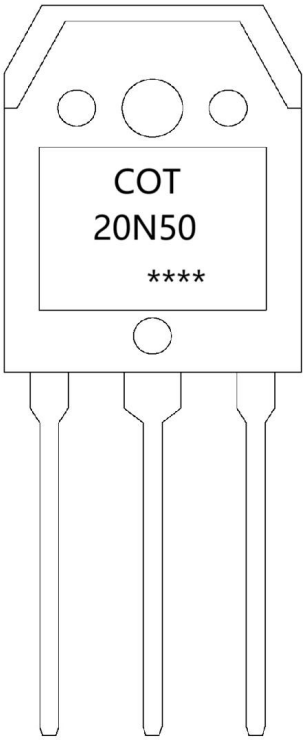








Marking Instructions



Note:

COT:	Company Code.
20N50:	Product Type.
****:	Lot No. Code, code change with Lot No.

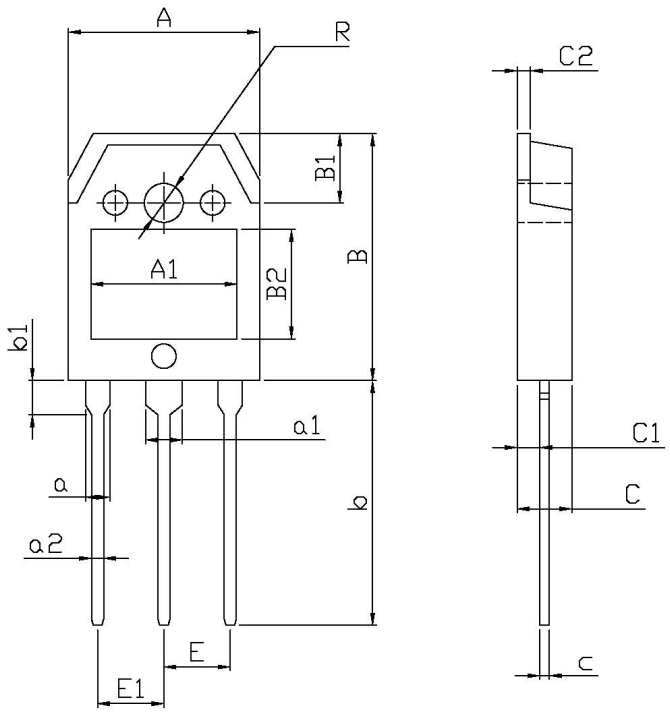
Packaging SPEC

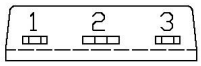
TUBE

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-3P	30	15	450	5	2250	497.5×46×8	555×164×50	575×290×180

Package Outline Dimensions

TO-3P 单位：mm





Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	15.4	16.0	a2	0.8	1.2
R	3.1	3.5	E	5.45	
B	19.8	20.8	E1	5.45	
B1	5.5	5.9	C	4.3	4.7
B2	9.0		C1	1.2	1.6
A1	12.0		C2	1.4	1.6
b	19.6	20.6	c	0.5	0.7
b1	3.0	3.4			
a	1.8	2.2			
a1	2.8	3.2			