/ Descriptions

TO-3P N MOS

N-Channel MOSFET in a TO-3P Plastic Package.

/ Features

V_{DS}=500V I_D=24A

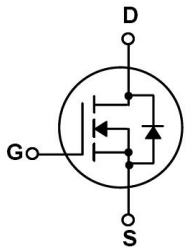
$R_{DS(ON)}$@10V≤0.25Ω(Typ. 0.17Ω)

$R_{DS(ON)}$@6V≤0.3Ω(Typ. 0.18mΩ)

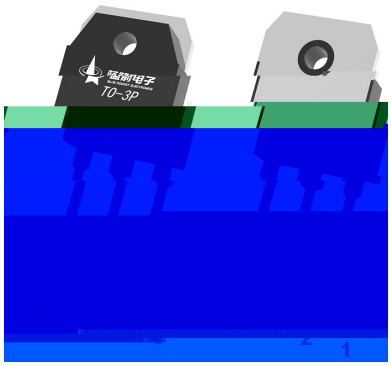
/ Applications

Designed for high voltage, high speed power switching applications such as high efficiency switched mode power supplies, active power factor correction.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S

/ Marking

See Marking Instructions.

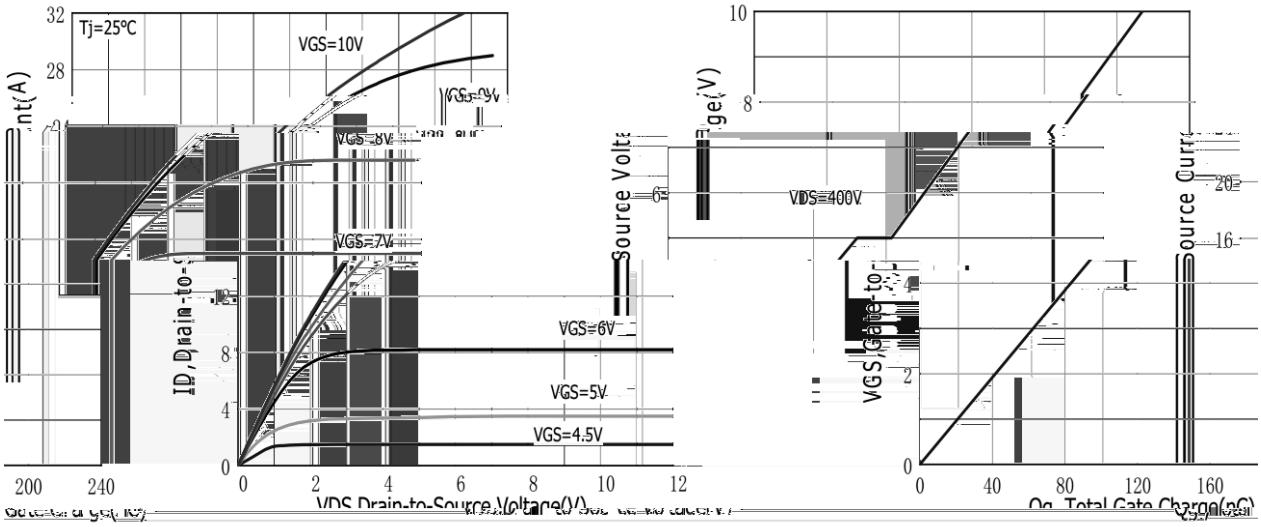
/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Drain-to-Source Breakdown Voltage	V_{DSS}	500	V
Continuous Drain Current	I_D(Tc=25)	24	A
Drain Current Pulsed	I_{DM}	90	A
Gate-to-Source Voltage	V_{GS}	±30	V
Avalanche Current	I_{AS}	21	A
Single Pulse Avalanche Energy	E_{AS}	1960	mJ
Power Dissipation	P_D(Tc=25)	270	W
Junction Temperature Range	T_j	150	℃
Storage Temperature Range	T_{stg}	-55 150	℃
Thermal Resistance Junction-Case	$R_{\theta JC}$	0.46	℃/W

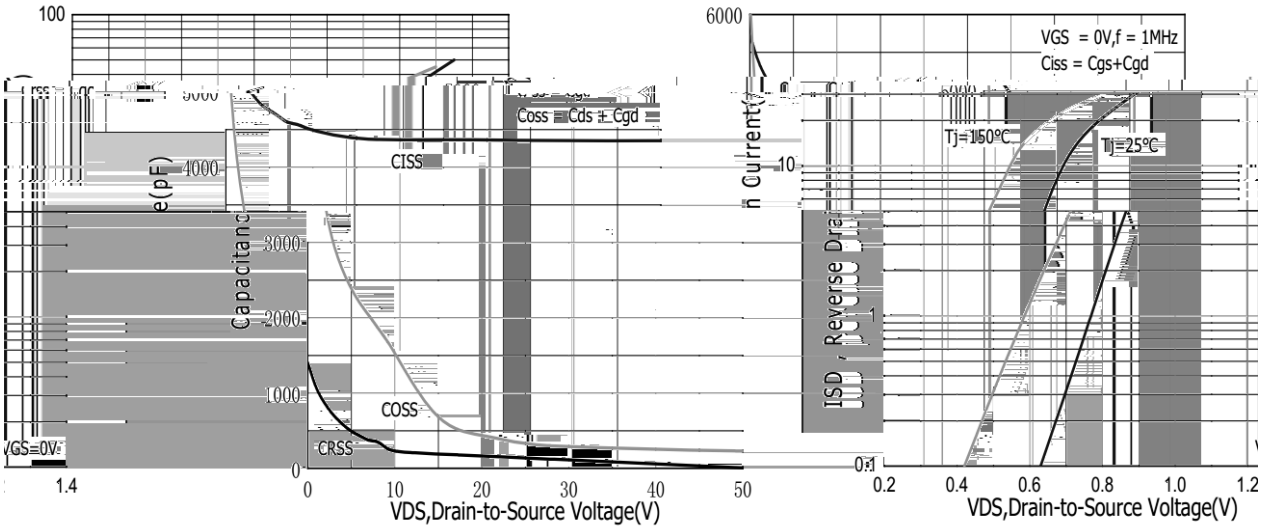
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	V_{DSS}	V_{GS}=0V I_D=250μA	500	550		V
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=500V V_{GS}=0V			1.0	μA
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		4.0	V
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=12A		0.17	0.25	Ω
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	V_{GS}=6V I_D=6A		0.18	0.3	Ω
Diode Forward Voltage	V_{SD}	V_{GS}=0V I_{SD}=24A			1.4	V
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1.0MHz		4364		pF
Output Capacitance	C_{oss}			311		
Reverse Transfer Capacitance	C_{rss}			138		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=250V I_D=24A R_G=10Ω		28.8		ns
Rise Time	t_r			5.6		
Turn-Off Delay Time	$t_{d(off)}$			106.4		
Fall Time	t_f			9.6		
Total Gate Charge	Q_g	V_{DS}=400V I_D=24A V_{GS}=10V		214		nC
Gate-Source Charge	Q_{gs}			104		
Gate-Drain Charge	Q_{gd}			19		

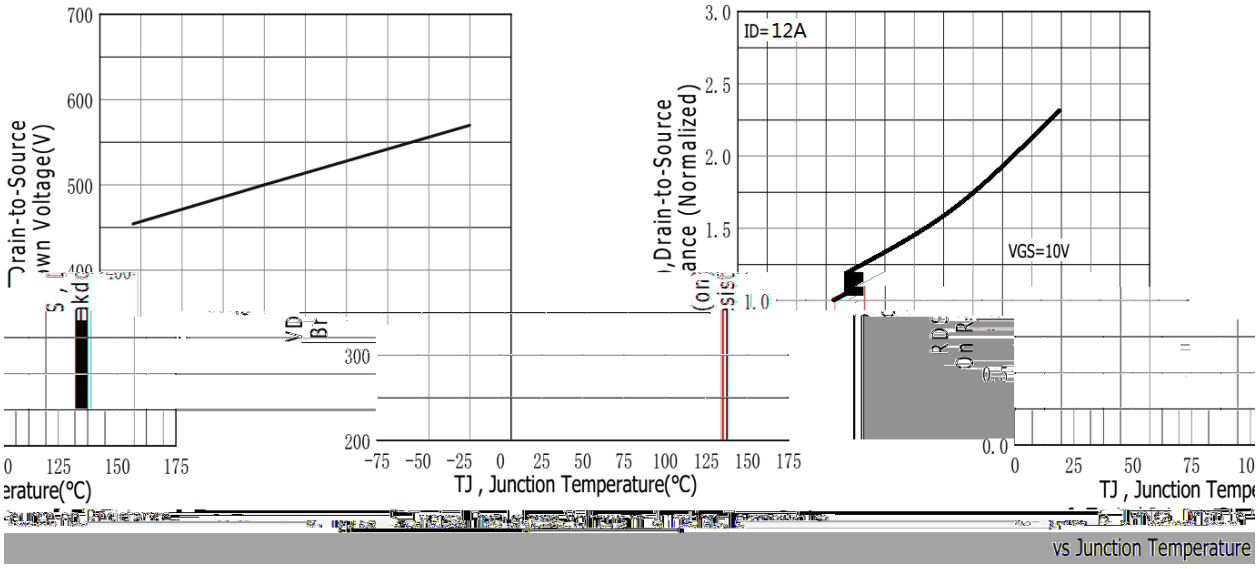
/ Electrical Characteristic Curve



e vs Gate to Source Voltage | 1. Typical Output Characteristics | 2. Typical Gate Charg

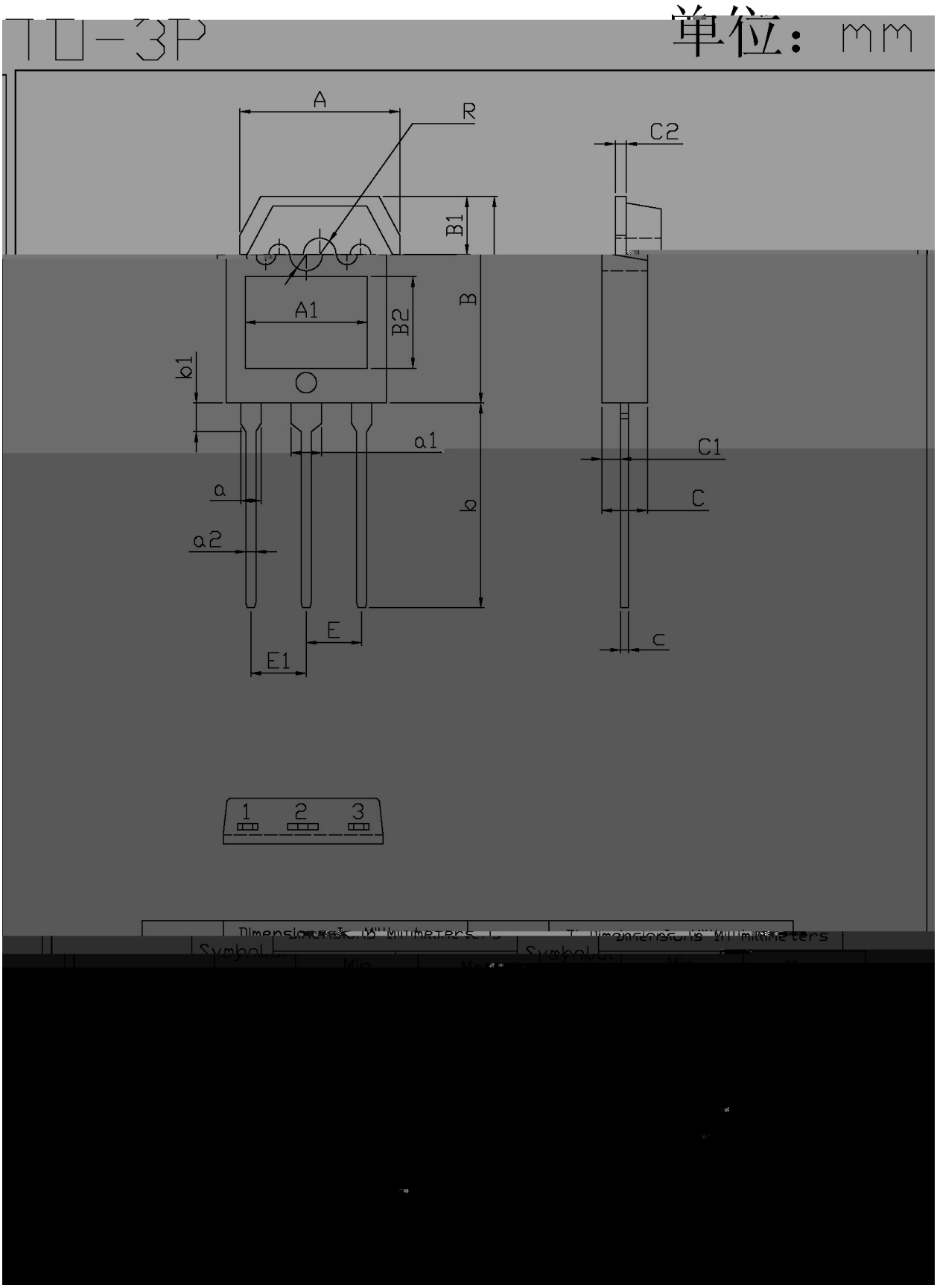


stics | 4. Typical Capacitance vs Drain to Source Voltage | 3. Typical Body Diode Transfer Characteri

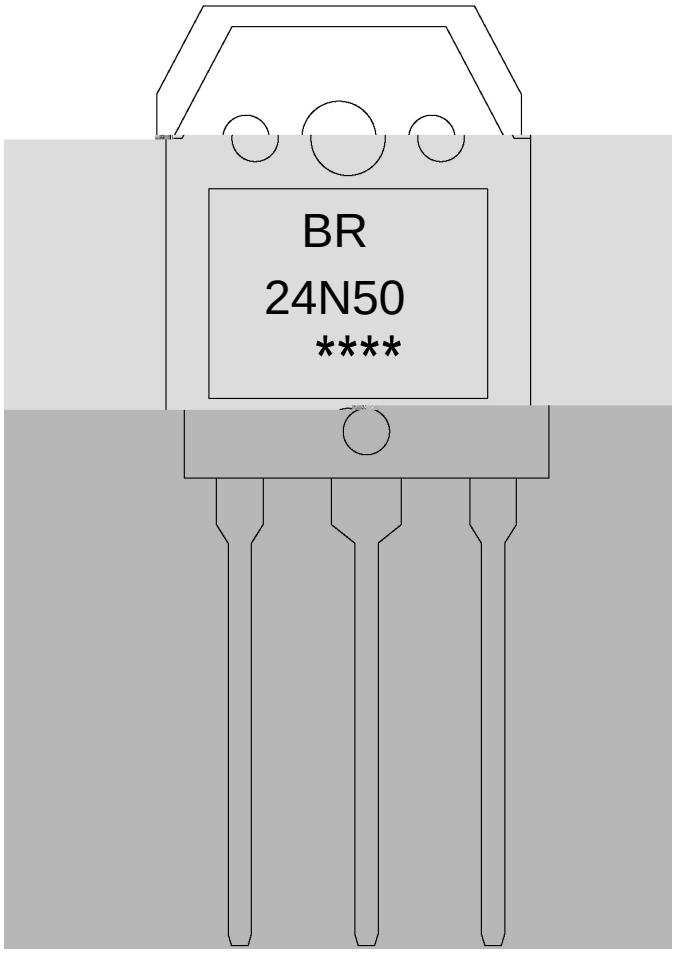


vs Junction Temperature

/ Package Dimensions



/ Marking Instructions



BR:

24N50

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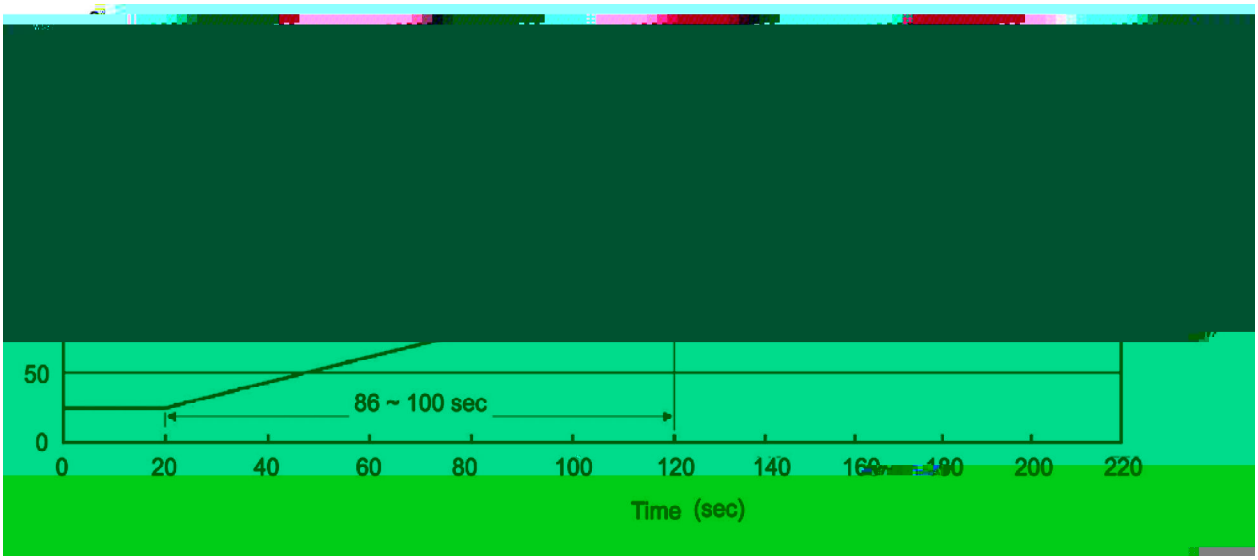
Note:

BR:	Company Code
24N50:	Product Type
****:	Lot No. Code, code change with Lot No

( ) / Temperature Profile for Dip Soldering(Pb-Free)



	Note:
1 25 150 60 90sec;	1.Preheating:25~150 , Time:60~90sec.
2 255±5 5±0.5sec;	2.Peak Temp.:255±5 , Duration:5±0.5sec.
3 2 10 /sec.	3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

270±5 10±1 sec. Temp:270±5℃ Time:10±1 sec

/ Packaging SPEC.

/ TUBE

Package Type	Units					Dimension (unit mm³)		
	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	2,250	497.5×46×8	555×164×50	575×290×180

/ Notices