

/ Descriptions

TO-252 N MOS N-CHANNEL MOSFET in a TO-252 Plastic Package.

/ Features

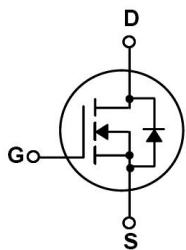
100%

Low gate charge, low $R_{ds(on)}$, fast switching, Low Reverse transfer capacitances, 100% Single Pulse avalanche energy Test.

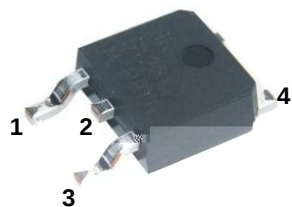
/ Applications

Power switch circuit of Video doorphone.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S PIN 4 D

/ h_{FE} Classifications & Marking

See Marking Instructions.

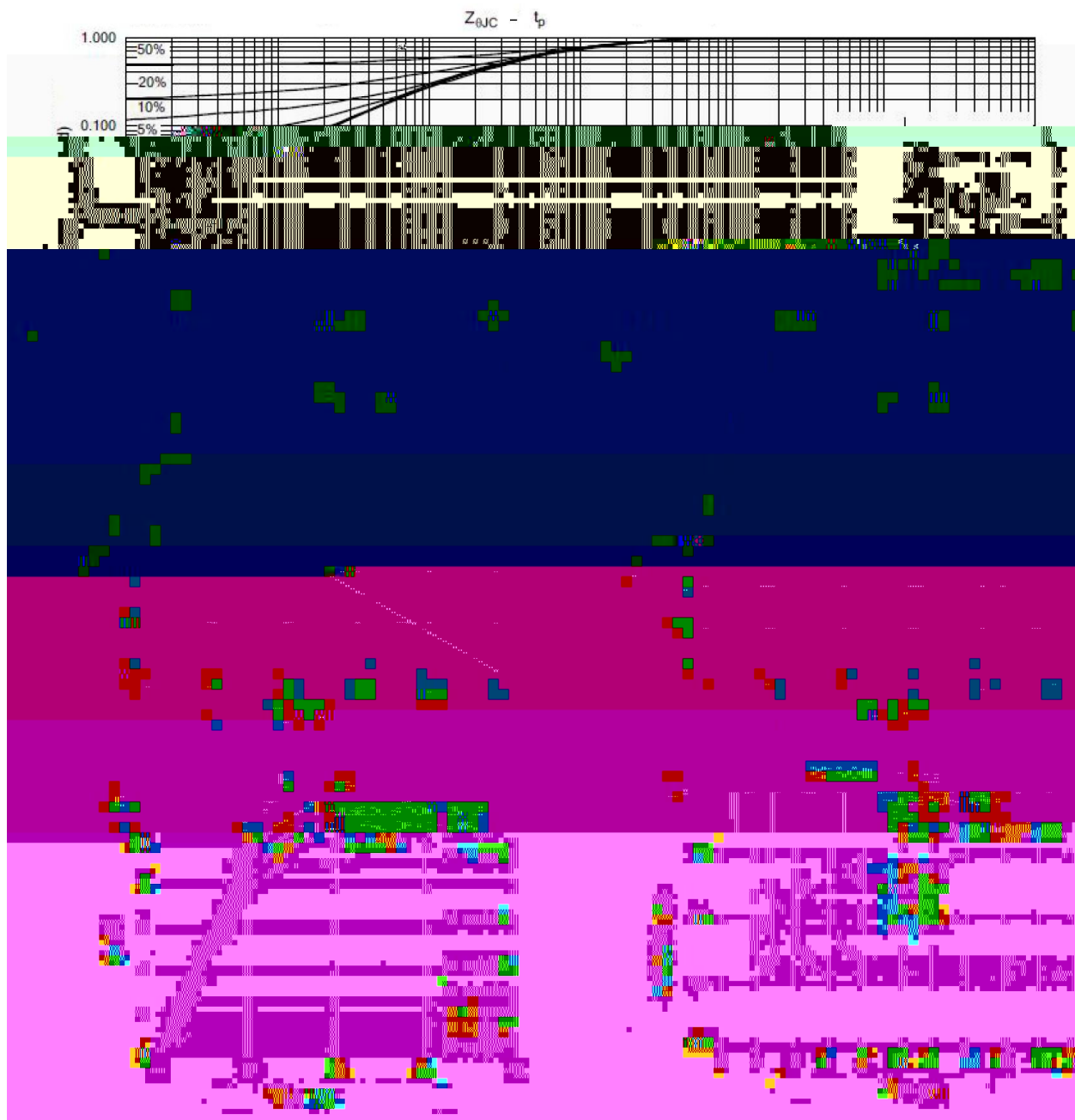
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	200	V
Drain Current	$I_D(T_c=25^\circ\text{C})$	4.8	A
Drain Current	$I_D(T_c=100^\circ\text{C})$	3.4	A
Drain Current - Pulsed	I_{DM}^{a1}	19.2	A
Gate-Source Voltage	V_{GSS}	± 30	V
Avalanche Current	I_{AR}^{a1}	1.6	A
Single Pulsed Avalanche Energy	E_{AS}^{a2}	125	mJ
Repetitive Avalanche Energy	E_{AR}^{a1}	12	mJ
Power Dissipation	$P_D(T_c=25^\circ\text{C})$	40	W
Derating Factor above 25	P_D	0.32	W/
Peak Diode Recovery dv/dt	dv/dt^{a3}	5	V/ns

/ Electrical Characteristics(Ta=25)

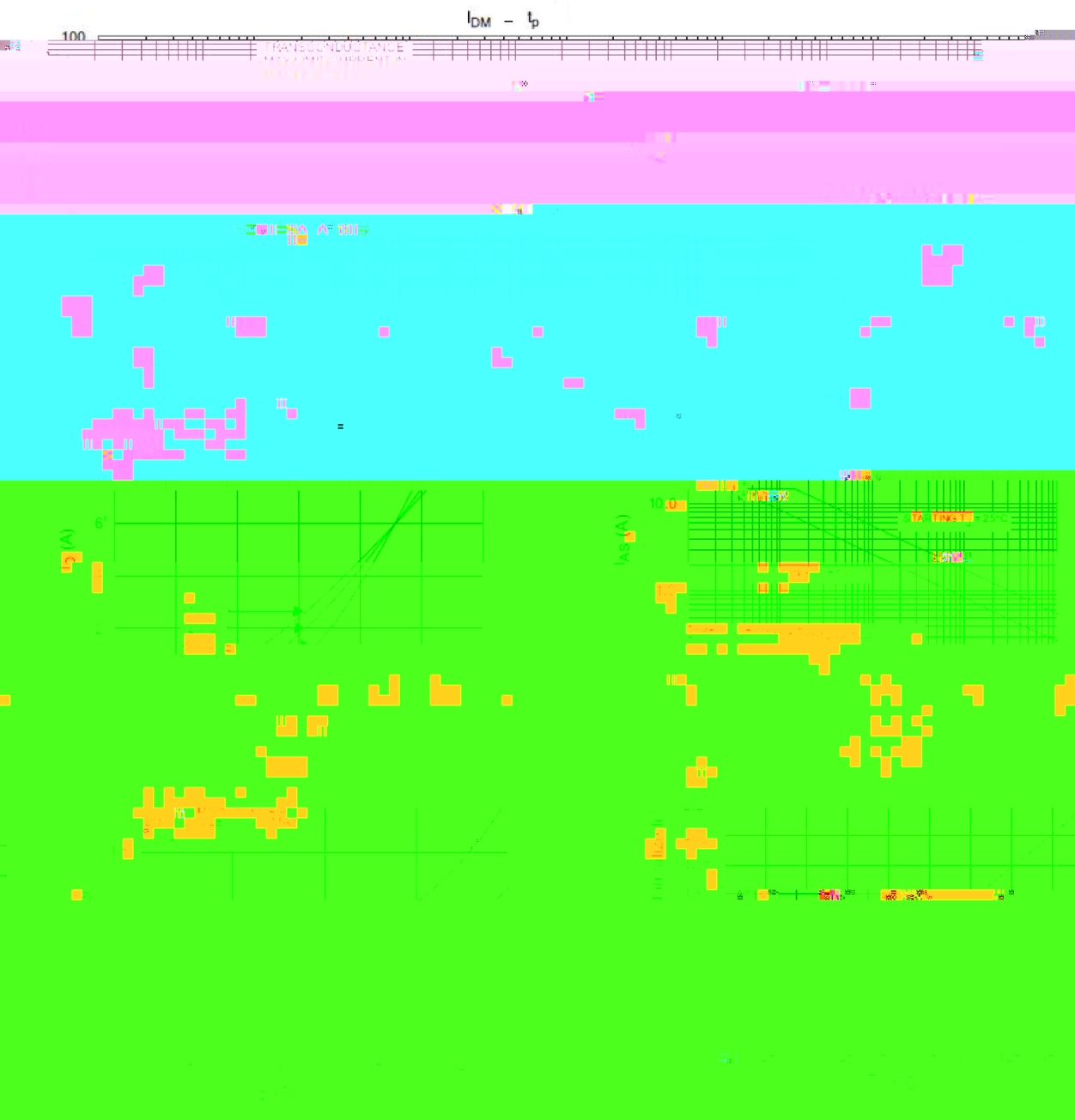
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$		255		pF
Output Capacitance	C_{oss}			52		pF
Reverse Transfer Capacitance	C_{rss}			8		pF
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=100V$ $I_D=4.8A$ $R_G=10\Omega$ $V_{GS}=10V$		7		ns
Turn-On Rise Time	t_r			13		ns
Turn-Off Delay Time	$t_{d(off)}$			27		ns
Turn-Off Fall Time	t_f			11		ns
Total Gate Charge	Q_g	$V_{DD}=100V$ $I_D=4.8A$ $V_{GS}=10V$		7		nC
Gate to Source Charge	Q_{gs}			2		nC
Gate to Drain (Miller) Charge	Q_{gd}			3		nC
Continuous Source Current (Body Diode)	I_S				4.8	A
Maximum Pulsed Current (Body Diode)	I_{SM}				19.2	A
Reverse Recovery Time	t_{rr}	$I_S=4.8A$ $T_J=25\text{ }^{\circ}C$ $dI_F/dt=100A/us$ $V_{GS}=0V$		105		ns
Reverse Recovery Charge	Q_{rr}			380		nC
Reverse Recovery Current	I_{RRM}			7.2		A

- a1 Repetitive rating; pulse width limited by maximum junction temperature
a2 $L=10.0mH$, $I_D=5A$, Start $T_J=25$
a3 $I_{SD}=4.8A$, $di/dt \leq 100A/us$, $V_{DD} \leq B_{VDS}$, Start $T_J=25$

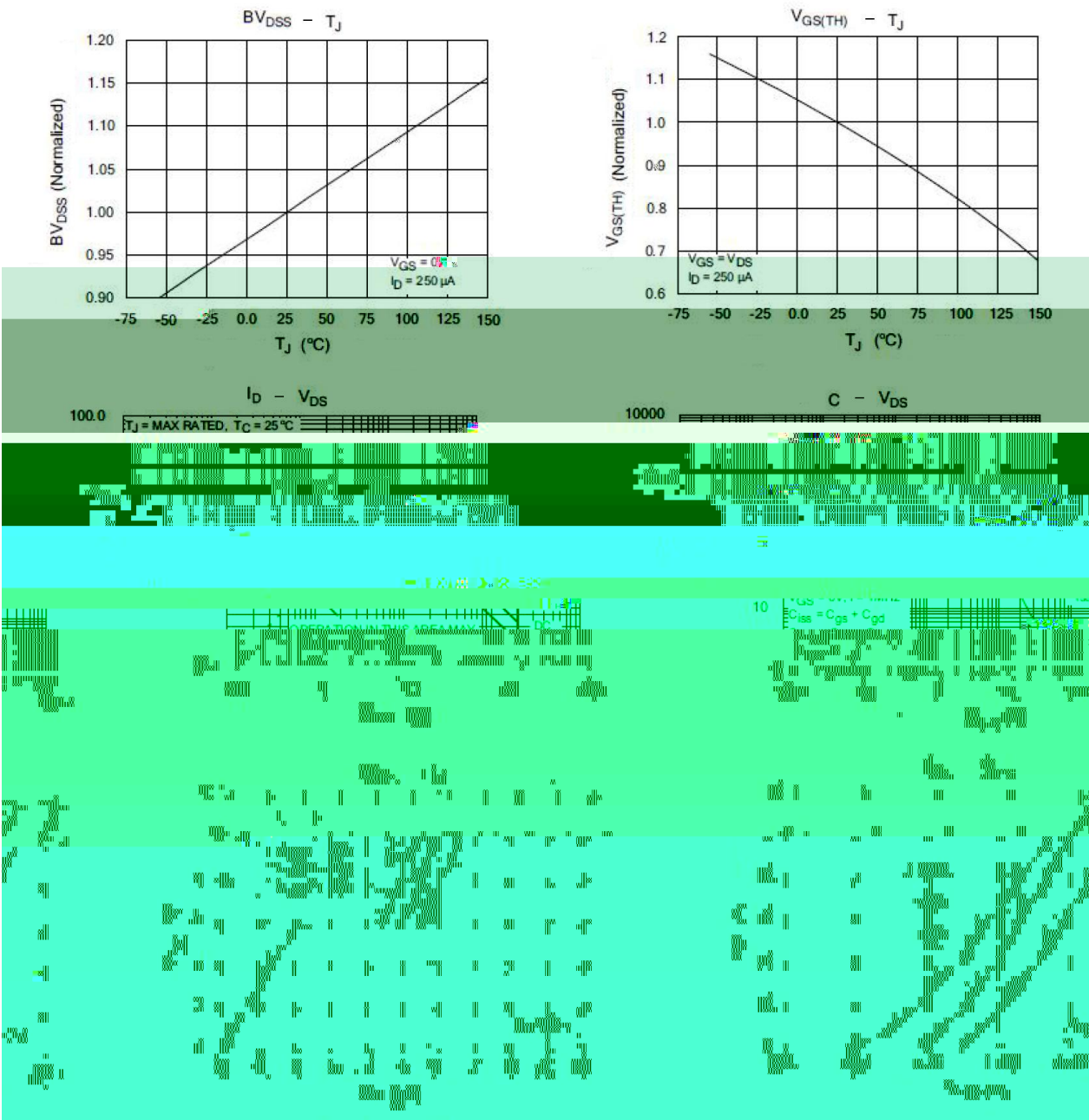
/ Electrical Characteristic Curve



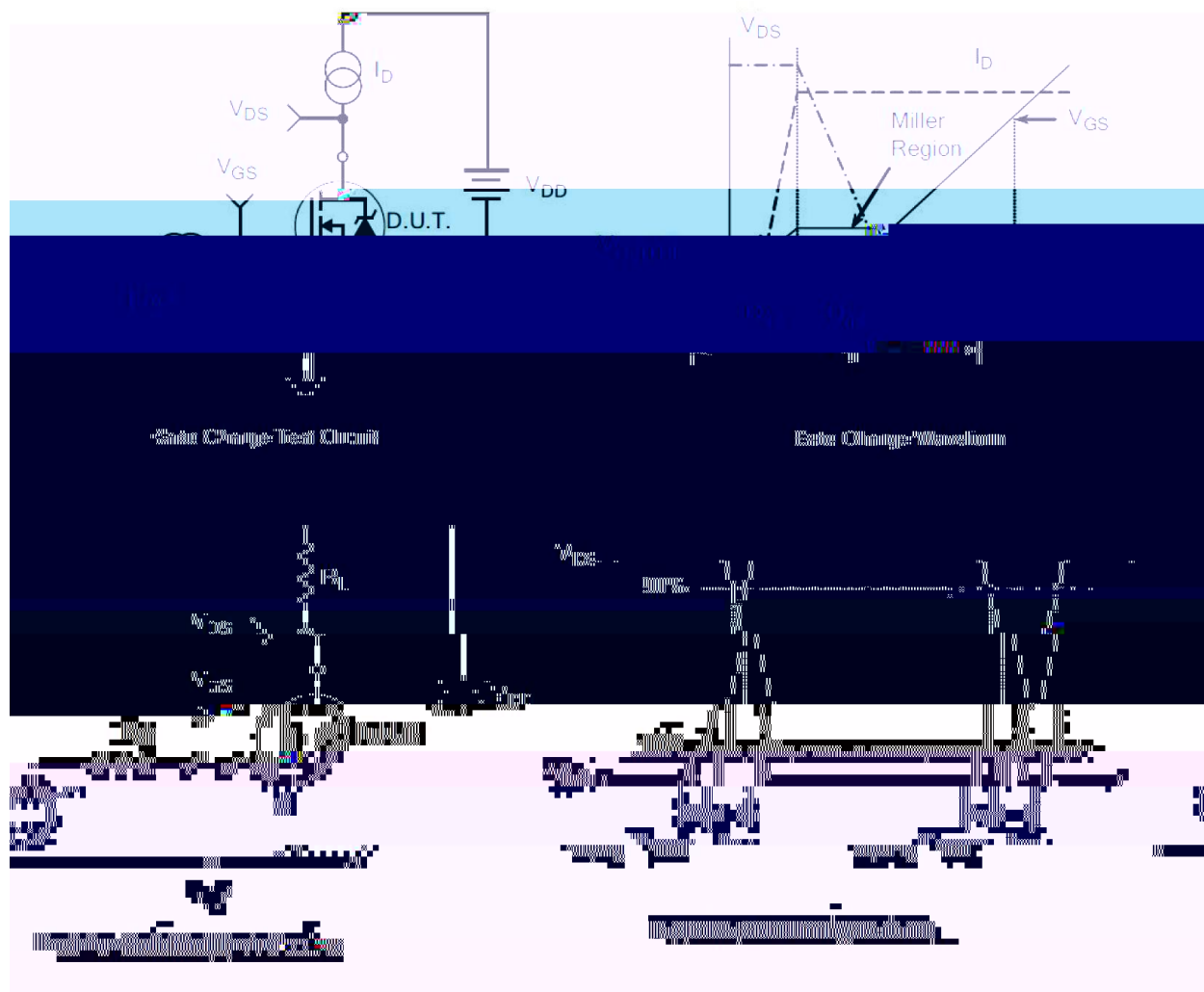
/ Electrical Characteristic Curve



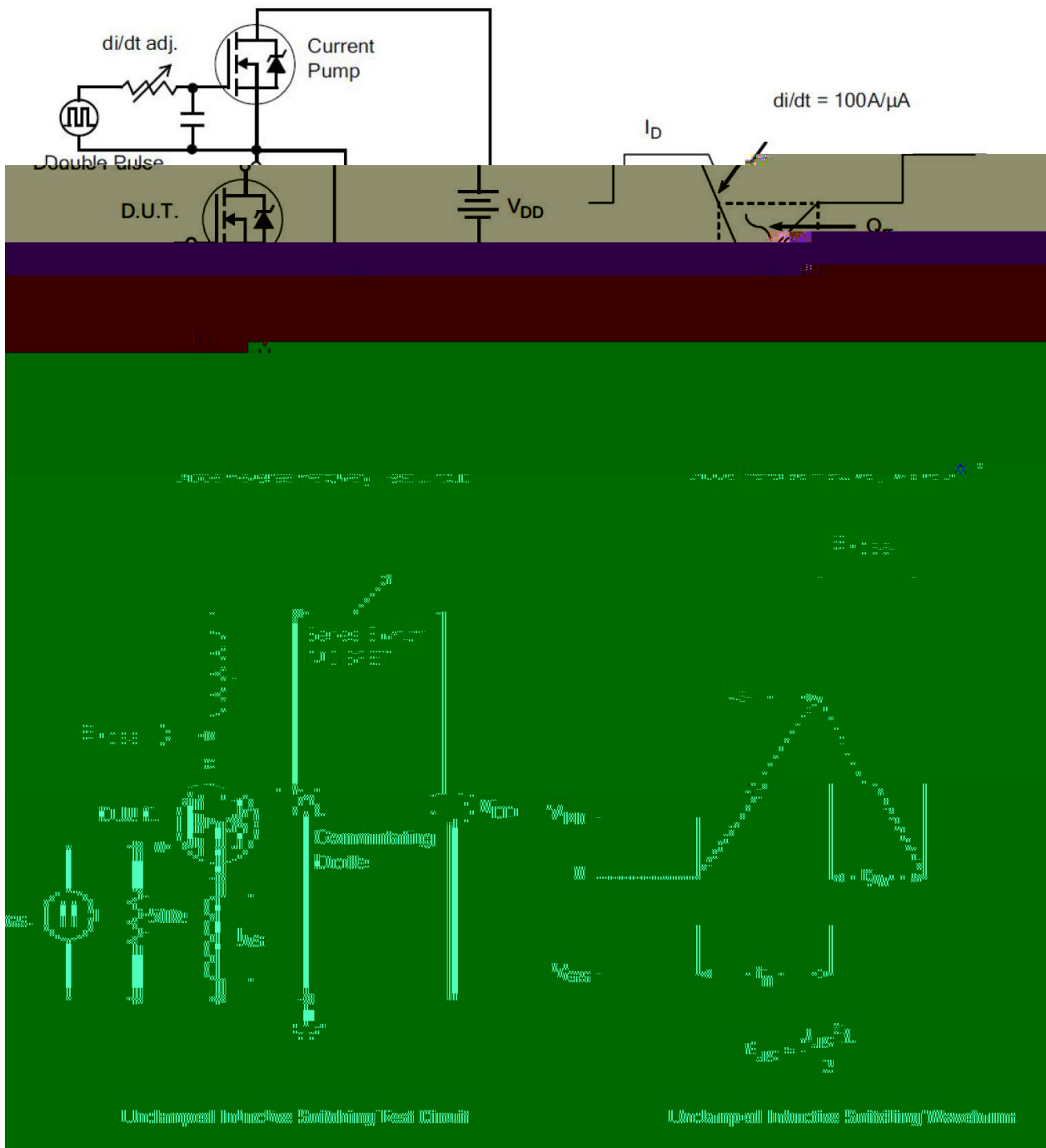
/ Electrical Characteristic Curve



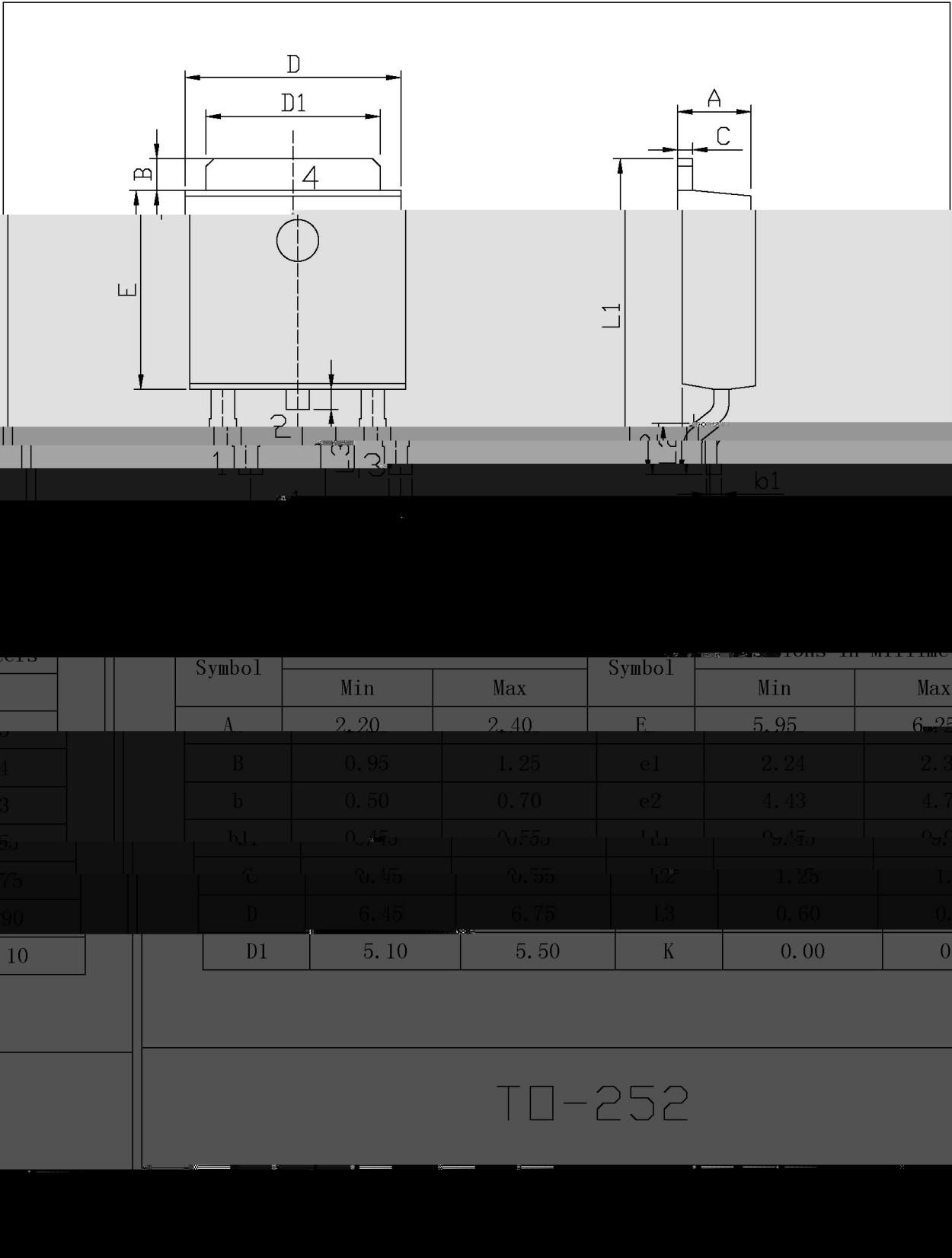
/ Test Circuit and Waveform



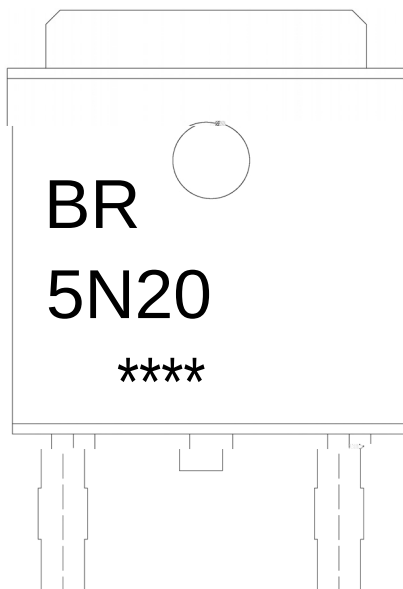
/ Test Circuit and Waveform



/ Package Dimensions



/ Marking Instructions



BR

5N20

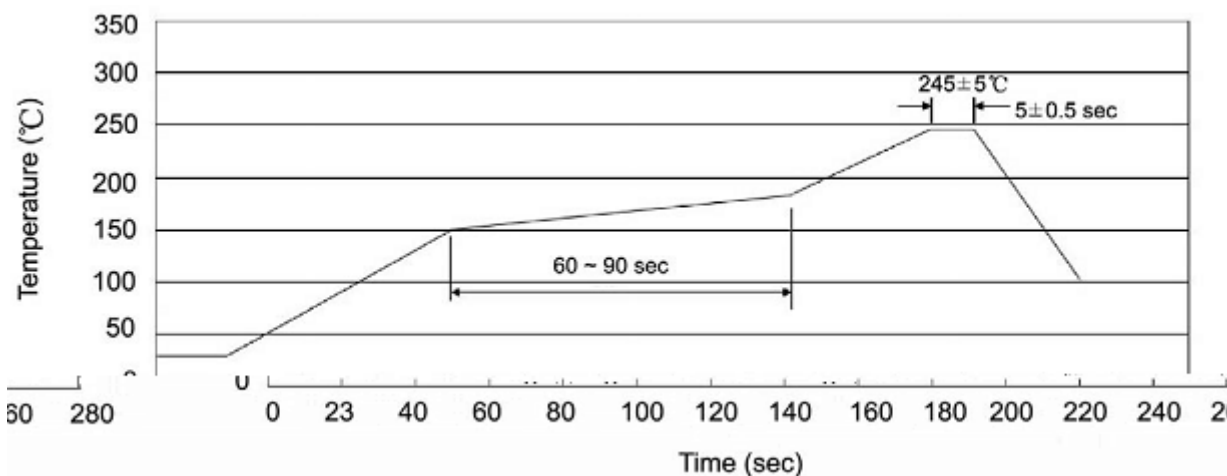
Note:

BR: Company Code.

5N20: Product Type.

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

() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- | | | | | | |
|---|-------|-----|-----------|--------|---|
| 1 | 25 | 150 | 60 | 90sec; | 1.Preheating:25~150 , Time:60~90sec. |
| 2 | 245±5 | | 5±0.5sec; | | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 | | 2 | 10 | /sec. | 3. Cooling Speed: 2~10 /sec. |

/ Resistance to Soldering Heat Test Conditions

260±5 10±1 sec. Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
TO-252	2,500	2	5,000	6	30,000	13 ×16	360×360×50	380×335×366

/ TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	Outer Box 箱
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

/ Notices