

/ Descriptions

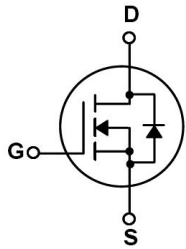
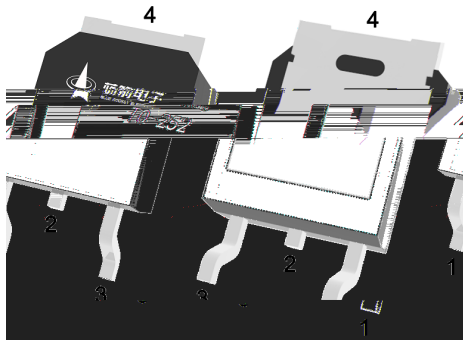
TO-252 N 650V

N-CHANNEL 650V Super-Junction Power MOSFET in a TO-252 Plastic Package.

/ Features $R_{DS(on)}$ C_{rss} Low $R_{DS(on)}$, low gate charge, low C_{rss} , fast switching, HF Product.**/ Applications**

DC/DC

Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products.

/ Equivalent Circuit**/ Pinning**

PIN1 G

PIN 2 D

PIN 3 S

PIN 4 D

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	650	V
Drain Current	$I_D(T_c=25)$	4	A
Drain Current - Pulsed	I_{DM}	16	A
Gate-Source Voltage	V_{GS}	± 30	V
Single Pulsed Avalanche Energy	E_{AS}	70.2	mJ
Avalanche Current	I_{AS}	3.6	A
Power Dissipation	$P_D(T_c=25)$	56.5	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	
Junction-to-Ambient	$R_{\theta JA}$	55	/W
Junction-to-Case	$R_{\theta JC}$	2.2	/W

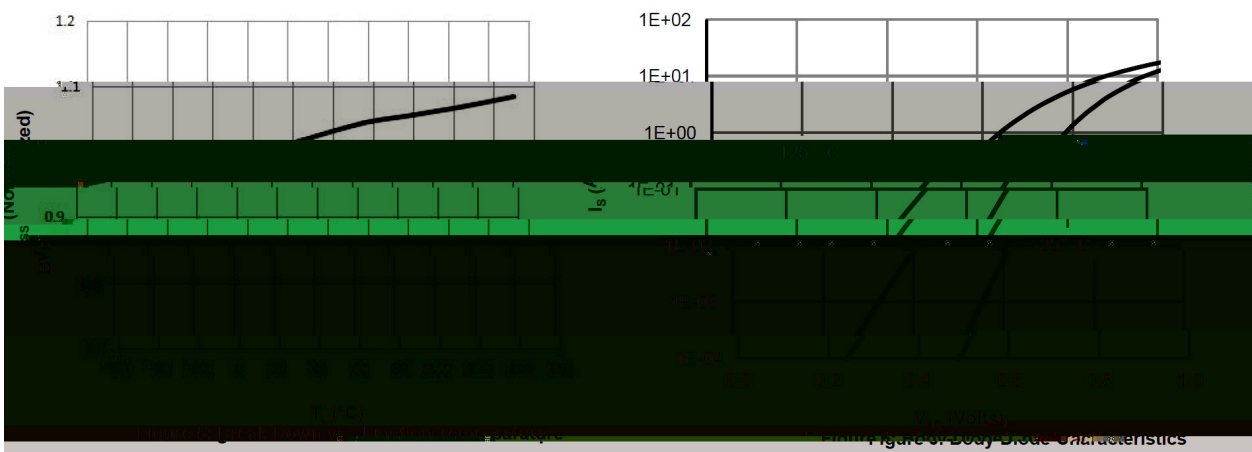
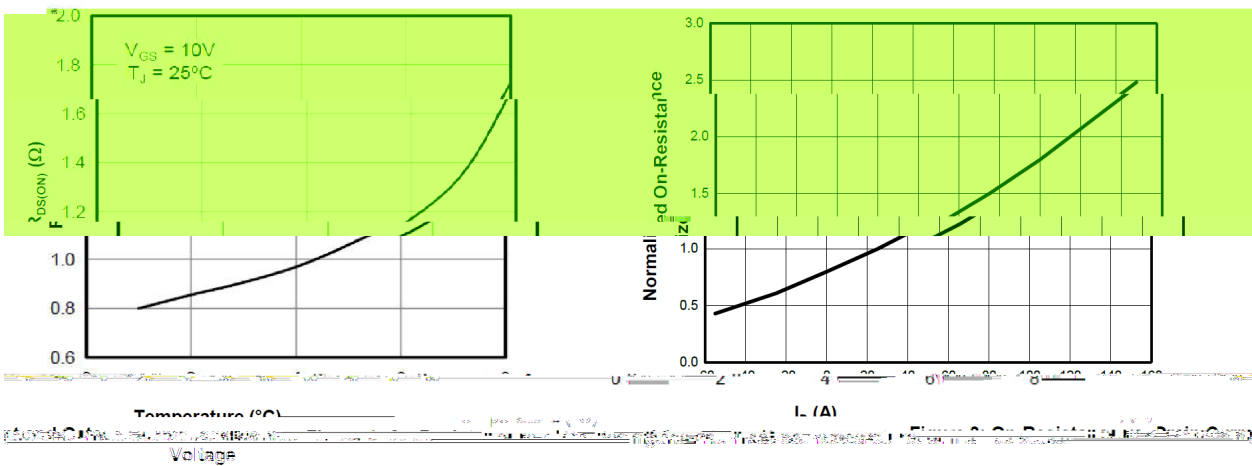
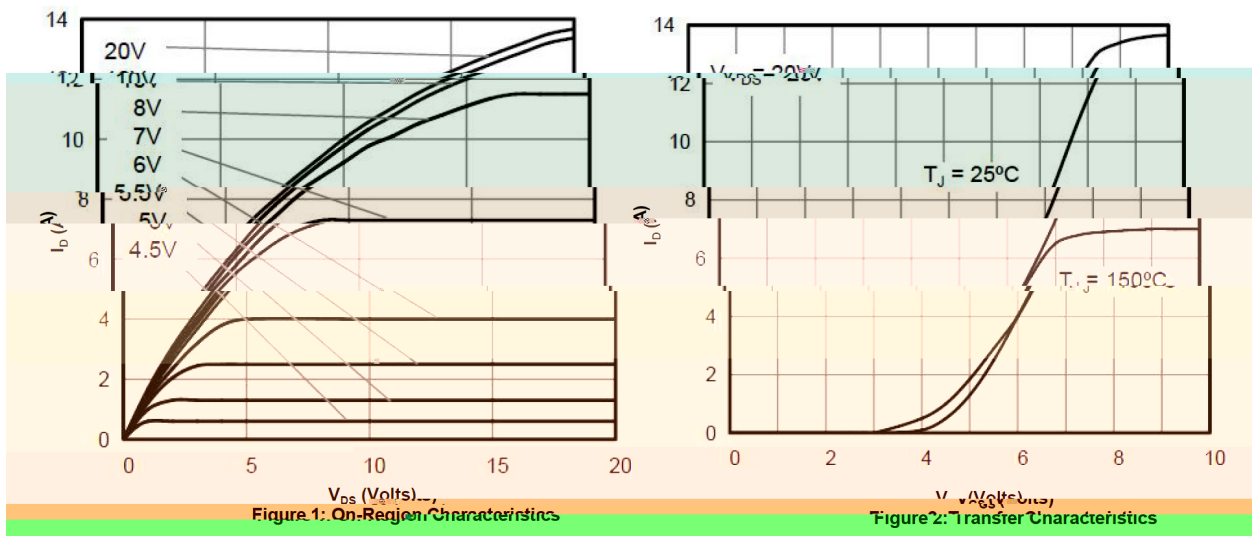
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\mu A$	650			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=650V$ $V_{GS}=0V$ $T_J=25$			1.0	μA
Gate-Body Leakage Current, Forward	I_{GSS}	$V_{GS}=\pm 30V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2.5	3.3	4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=0.5A$		945	1200	m Ω
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_{SD}=1A$ $T_J=25$			1.2	V
Gate Resistance	R_g	$V_{GS}=0V$ $f=1.0MHz$		19.6		Ω
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		195		pF
Output Capacitance	C_{oss}			320		pF
Reverse Transfer Capacitance	C_{rss}			6.5		pF
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=400V$ $I_D=2A$ $V_{GS}=10V$ $R_G=25\Omega$		26.7		ns
Turn-On Rise Time	t_r			22.5		ns
Turn-Off Delay Time	$t_{d(off)}$			35.8		ns
Turn-Off Fall Time	t_f			29.1		ns

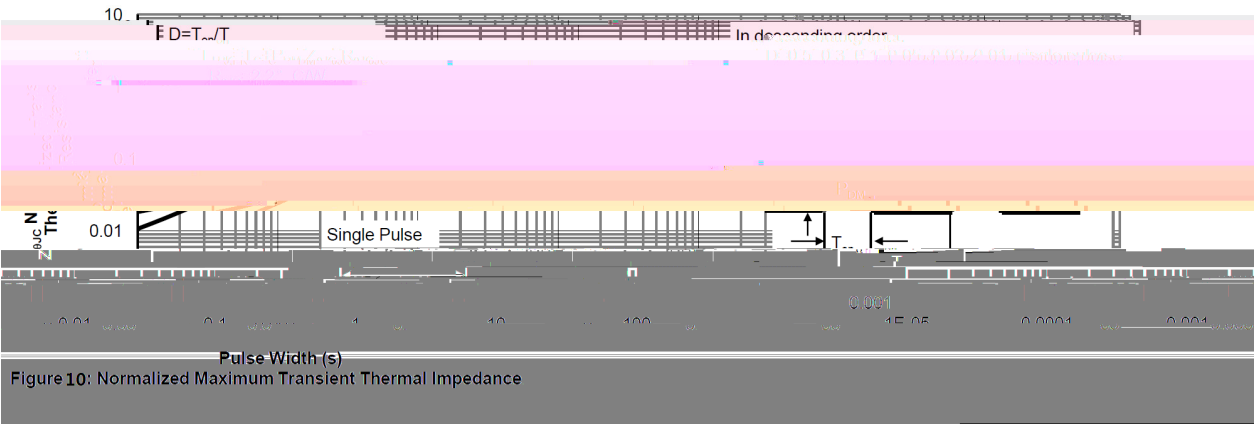
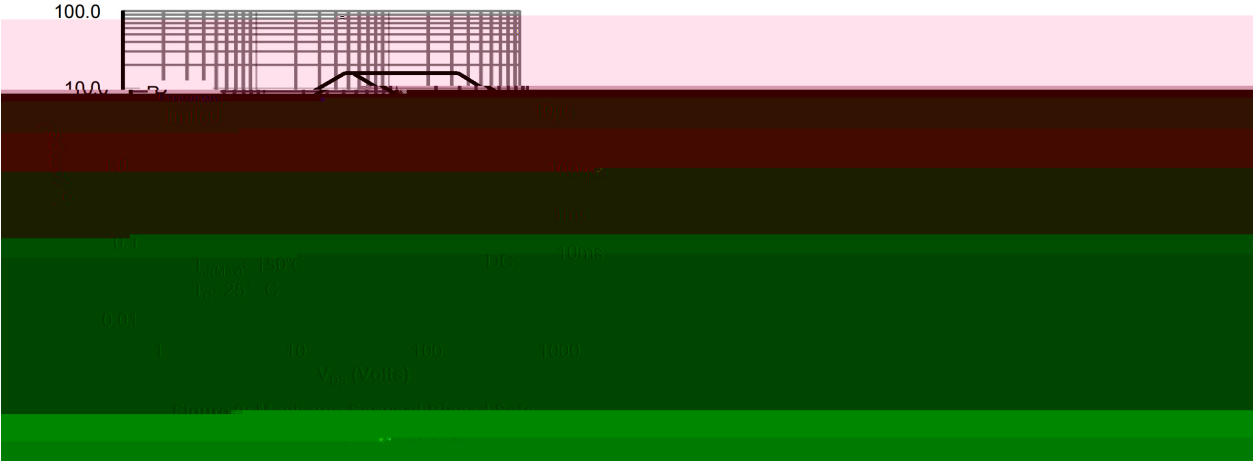
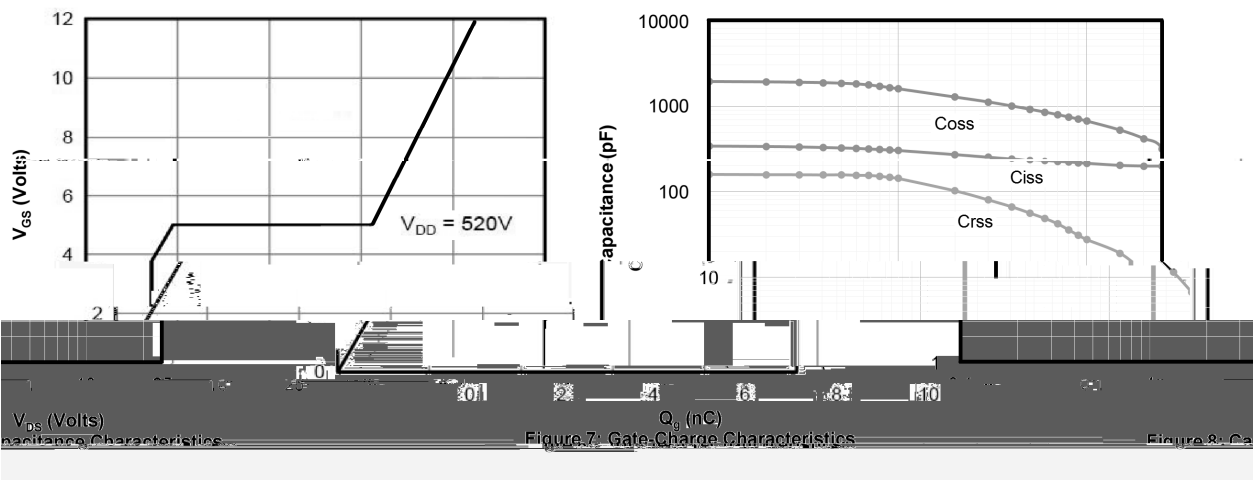
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Continuous Diode Forward Current	I_S				4	A
Total Gate Charge	Q_g	$V_{DS}=520V \quad I_D=2A$ $V_{GS}=10V$		7.9		nC
Gate-Source Charge	Q_{gs}			2.0		nC
Gate-Drain Charge	Q_{gd}			1.9		nC
Reverse recovery time	T_{rr}	$V_R=400V, I_F=2A,$ $dI_F/dt=100A/\mu s$		119		ns
Reverse recovery charge	Q_{rr}			0.7		uC

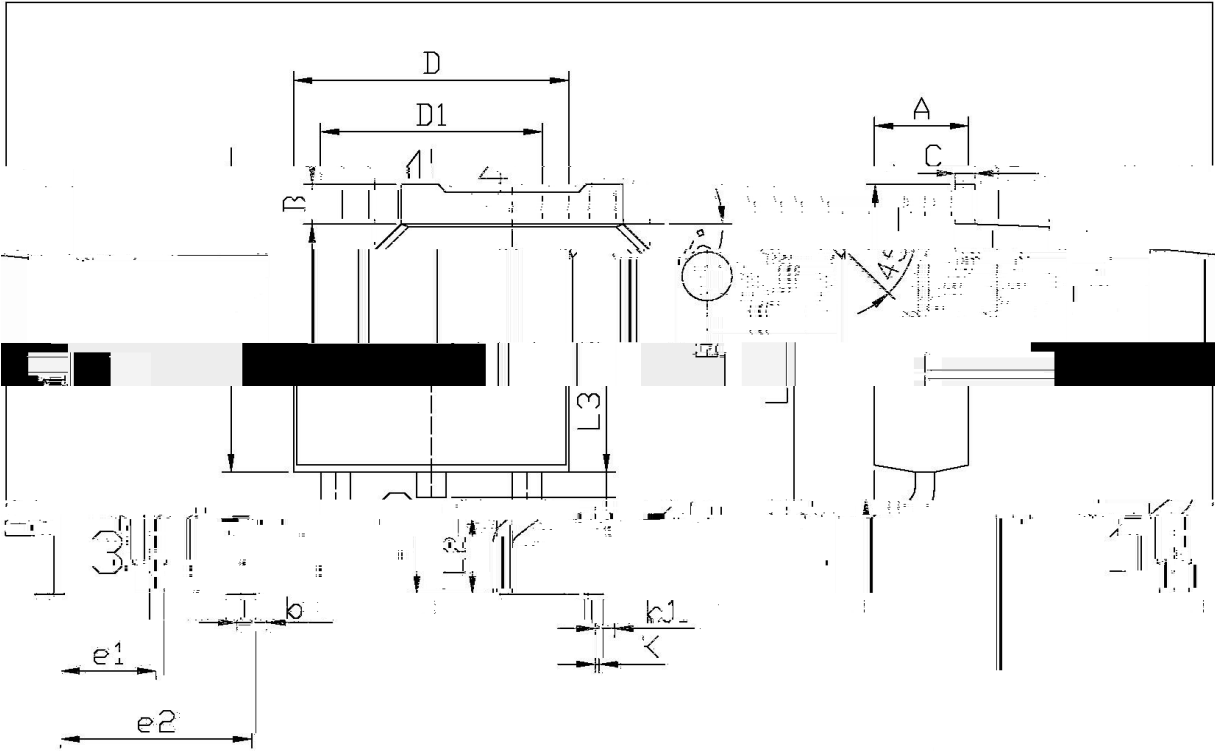
/ Electrical Characteristic Curve



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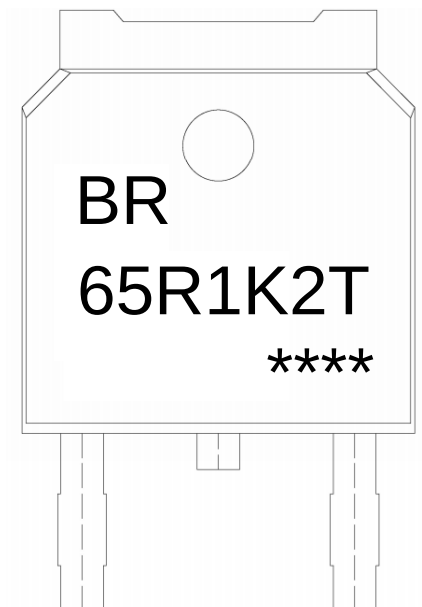
/ Package Dimensions



单位: mm					
Symbol		Dimensions In Millimeters		Symbol	
		Min	Max		
E	5.95	6.25	6.50	F	2.20
e1	2.24	2.34	2.44	B	0.95
e2	4.13	4.73	5.33	C	0.70
L1	9.85	10.35	10.85	b1	0.45
L2	0.45	0.55	0.65	L3	1.70
D	6.45	6.75	7.05	D1	0.60
D1	5.10	5.20	5.30	K	0.90
T0-252					



/ Marking Instructions



BR

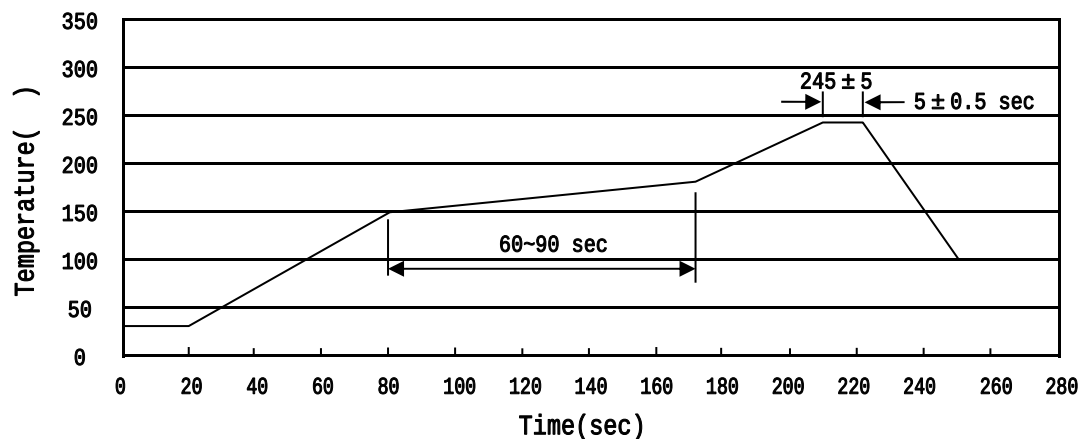
65R1K2T

Note:

BR: Company Code

65R1K2T: Product Type Code

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

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


Note:

- | | | | | | |
|---|-------|-----|-----------|--------|---|
| 1 | 150 | 180 | 60 | 90sec; | 1.Preheating:150~180 , 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	Units					Dimension (unit mm ³)		
	Units/Reel /	Reels/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Reel	Inner Box	Outer Box
TO-252	2,500	2	5,000	6	30,000	13 ×16	360×360×50	380×335×366

/ 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-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

/ Notices

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