BRCS150P02MC

Rev.B Mar.-2023

蓝箭电子
BLUE ROCKET ELECTRONICS
DATA SHEET

SOT23-3 ṂṂ Ŀ P ڗ MOS ʄ ῴ Ẕ ᄀ

S- CHANNEL MOSFET in a SOT23-3 Plastic Package.

V_{DS} (V) = -20V

I_D = -7.0A

$R_{DS(ON)}$@-4.5V

/ Absolute Maximum Ratings(Ta=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	-20	V
Gate-Source Voltage		V_{GSS}	±12	V
Continuous Drain Current		I_D	7.0	A
Pulsed Drain Current		I_{DM}	38	A
Avalanche Current		I_{AS}	13	A
Avalanche energy L=0.5mH		E_{AS}	59	mJ
Power Dissipation for Single Operation		P_D	1.3	W
Maximum Junction Temperature		T_j	150	℃
Storage Temperature Range		T_{stg}	-55 Ḱ 150	℃
Thermal Resistance-Junction to Ambient	tˇ10s	$R_{\theta JA}$	90	℃/W
	Steady State		125	℃/W
Thermal Resistance-Junction to Lead	Steady State	$R_{\theta JL}$	80	℃/W

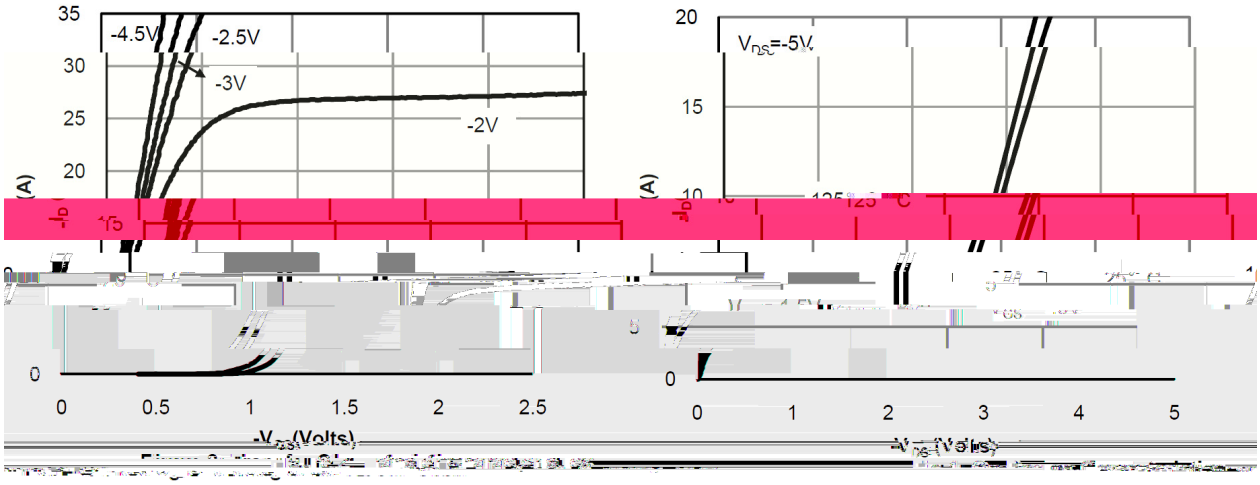
/ Electrical Characteristics(Ta=25)

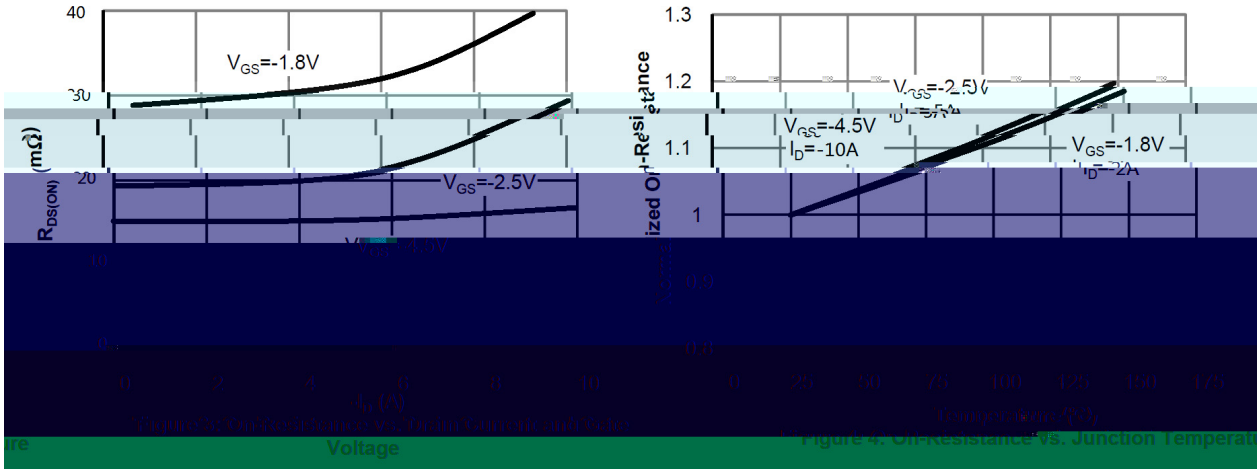
Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=-250μA	V_{GS}=0V	-20	-23		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V	V_{GS}=0V			-1.0	μA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V	V_{GS}=±12V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=VGS	I_D=-250μA	-0.4	-0.7	-1.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V	I_D=-10A		15	17	mΩ
		V_{GS}=-2.5V	I_D=-5A		19	25	
		V_{GS}=-1.8V	I_D=-1A		27	38	
Diode Forward Voltage	V_{SD}	I_S=-1A	V_{GS}=0V			-1.2	V
Gate resistance	Rg	V_{GS}=0V, V_{DS}=0V, f=1MHz			13.5		
Input Capacitance	C_{iss}	V_{GS}=0V f=1MHz	V_{DS}=-20V		2550		pF
Output Capacitance	C_{oss}				205		
Reverse Transfer Capacitance	C_{rss}				190		

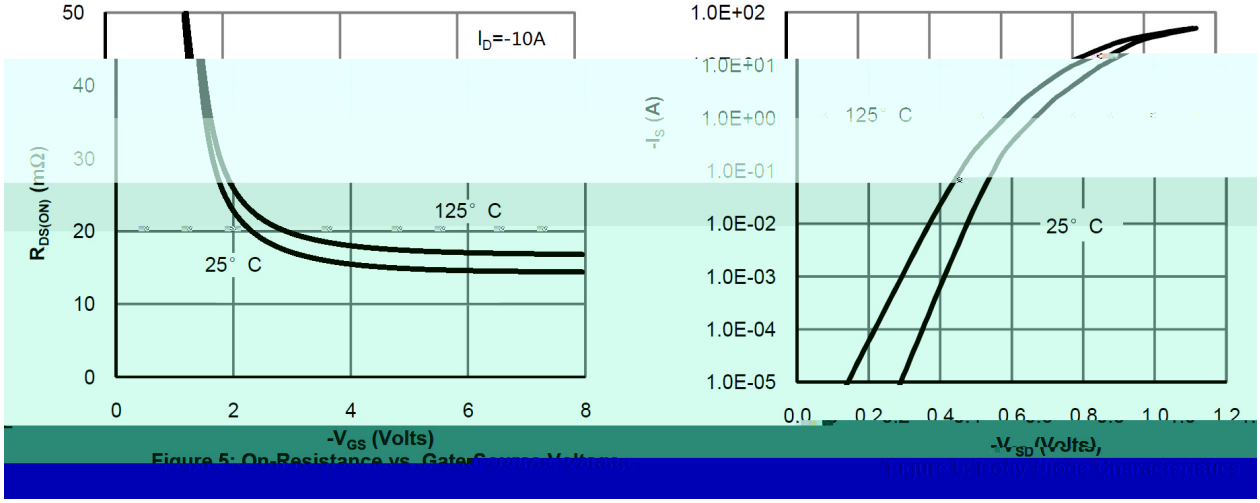
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	Q_g	V_{GS}=-4.5V, V_{DS}=-10V, I_D=-6.5A		7.4		nC
Gate Source Charge	Q_{gs}			1.3		
Gate Drain Charge	Q_{gd}			2.5		
Turn–On Delay Time	$t_{d(on)}$	V_{GS}=-4.5V R_L=1.54Ω V_{DS}=-10V R_{GEN}=3Ω		7.5		ns
Turn–On Rise Time	t_r			11		
Turn–Off Delay Time	$t_{d(off)}$			33		
Turn–Off Fall Time	t_f			10.5		

/ Electrical Characteristic Curve







/ Electrical Characteristic Curve

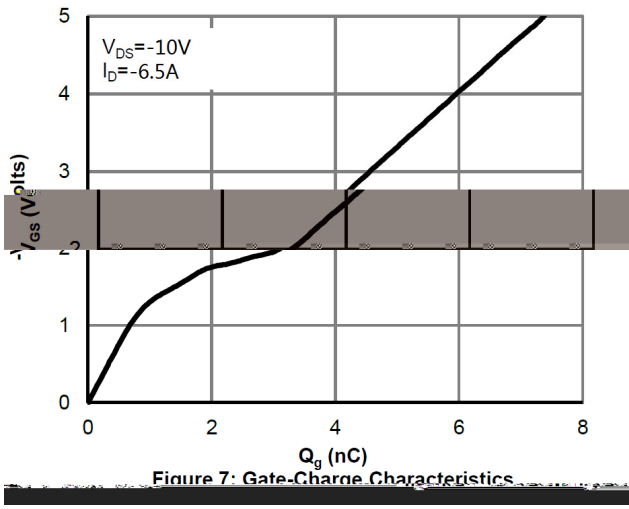


Figure 7: Gate-Charge Characteristics

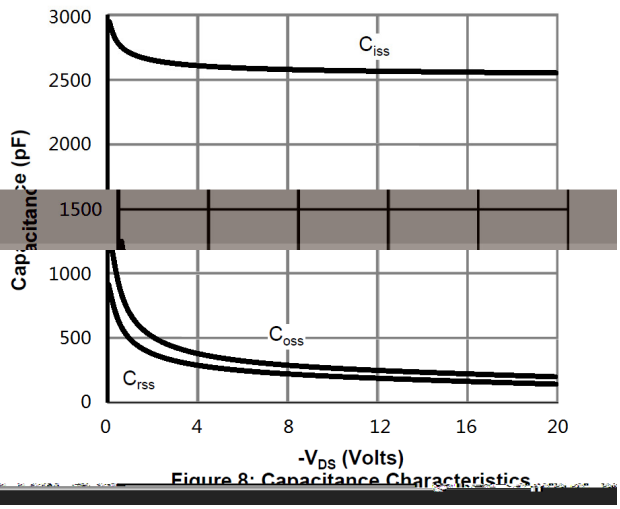
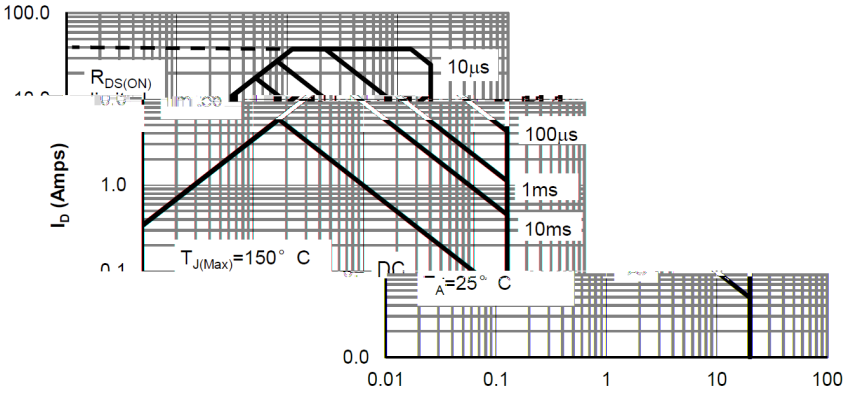


Figure 8: Capacitance Characteristics



V_{GS}> or equal to 1.8V
Figure 9: Maximum Forward Biased Safe Operating Area

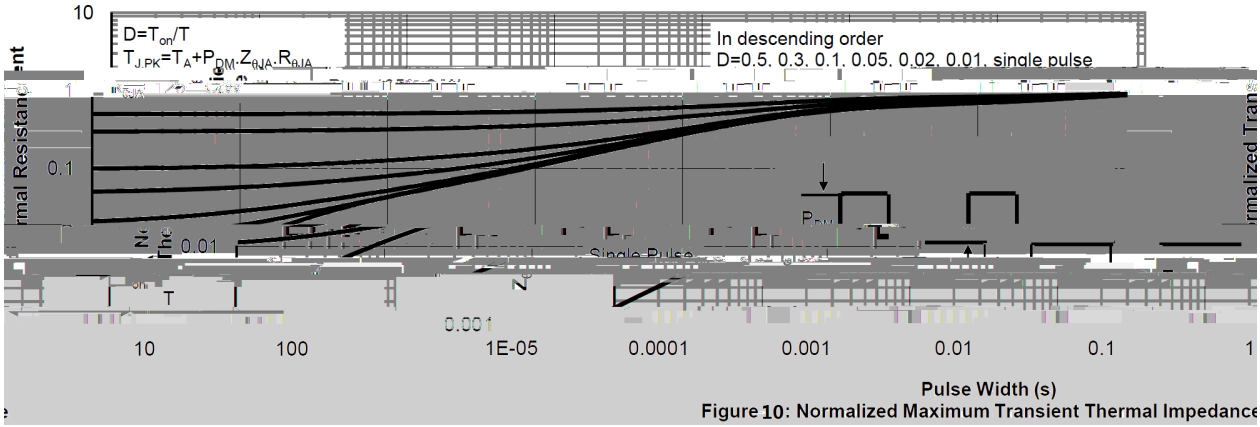
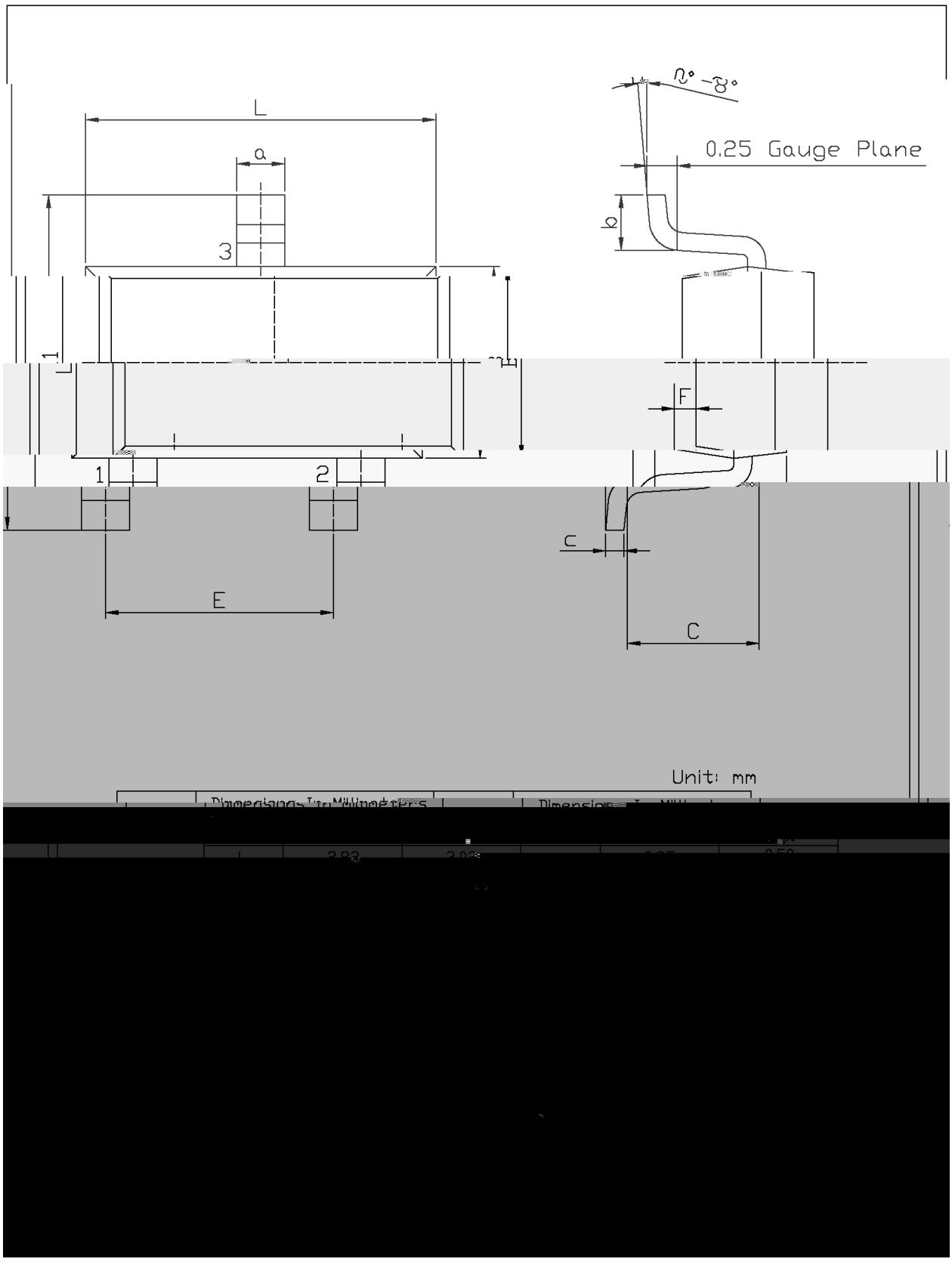
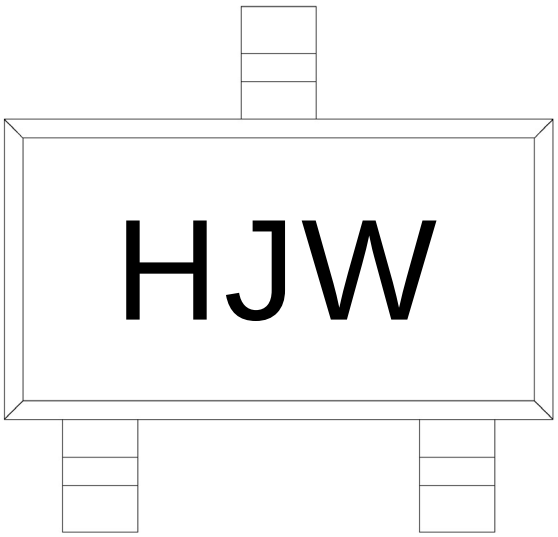


Figure 10: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions



/ Marking Instructions



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JW χ ᑲᖏ ᘐ ᴺ ᒥᑐ

Note:

H: Company Code

JW: Product Type

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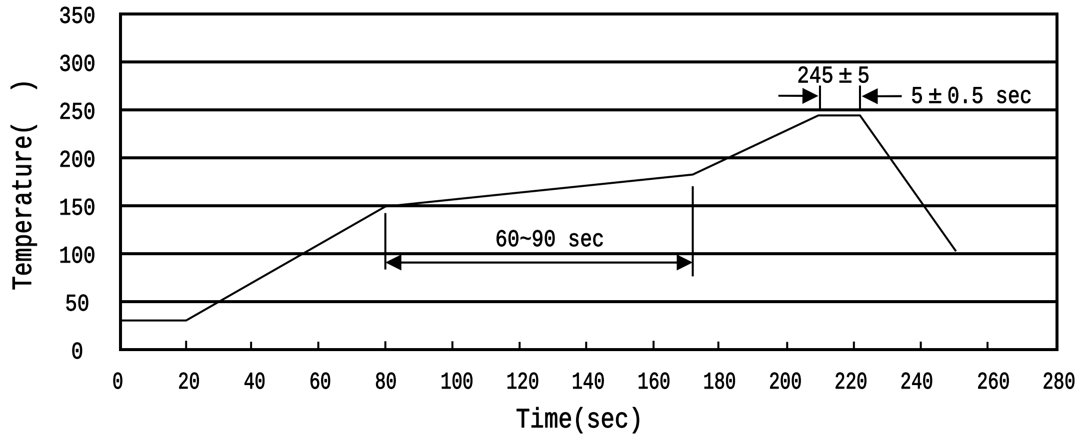

ب ˝ χ
1 ỉ ♬ □ ŷ 150 Ḱ 180 ł ı `H ڗ 60 Ḱ 90sec;
2 Š Ӫ □ ŷ 245 ° 5 ł ı `H ڗ 'Y ⲓ 㻉 5 ° 0.5sec;
3 ì ˙ ᅦ ˛ ɔ ๑ ŷ 㻉 2 Ḱ 10 ł /sec.

Note:
1.Preheating:150~180 ł , Time:60~90sec.
2.Peak Temp.:245 ° 5 ł , Duration:5 ° 0.5sec.
3. Cooling Speed: 2~10 ł /sec.

/ Resistance to Soldering Heat Test Conditions

□ ŷ χ 260 ° 5 ł `H ڗ χ 10 ° 1 sec.

Temp.:260 ° 5 ł Time:10 ° 1 sec

/ Packaging SPEC.

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Package Type	Units					Dimension (unit mm^3)		
SOT-23-3	3,000	10	30,000	4	120,000	7 ×8	210×205×205	445×230×435

/ Notices