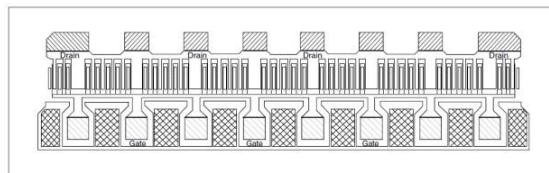


### FEATURES

- High Output Power:  $P_{1dB} = 32.5\text{dBm(Typ.)}$
- High Gain:  $G_{1dB} = 6.0\text{dB(Typ.)}$
- High Power Added Efficiency:  $\text{PAE} = 27\%\text{(Typ.)}$
- Proven Reliability



### DESCRIPTION

The FLK207XV chip is a power GaAs FET that is designed for general purpose applications in the Ku-Band frequency range as it provides superior power, gain, and efficiency.

Sumitomo Electric stringent Quality Assurance Program assures the highest reliability and consistent performance.

### ABSOLUTE MAXIMUM RATING (Ambient Temperature $T_a=25\text{deg.C}$ )

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	$V_{DS}$		15	V
Gate-Source Voltage	$V_{GS}$		-5	V
Total Power Dissipation	$P_{tot}$	$T_c = 25\text{deg.C}$	12.5	W
Storage Temperature	$T_{stg}$		-65 to +175	deg.C
Channel Temperature	$T_{ch}$		175	deg.C

Sumitomo Electric recommends the following conditions for the reliable operation of GaAs FETs:

1. The drain-source operating voltage ( $V_{DS}$ ) should not exceed 10 volts.
2. The forward and reverse gate currents should not exceed 17.8 and -1.0 mA respectively with gate resistance of 250ohm.
3. The operating channel temperature ( $T_{ch}$ ) should not exceed 145deg.C.

### ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25\text{deg.C}$ )

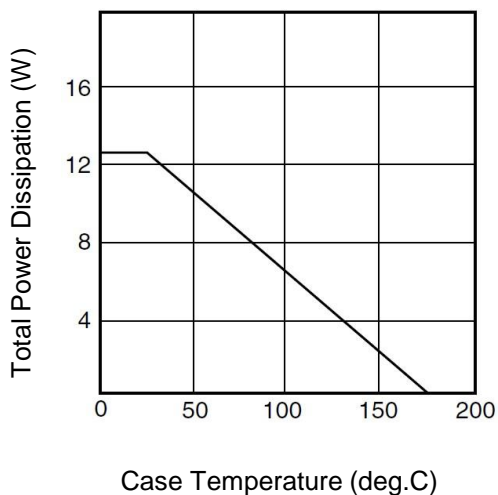
Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 5V, V_{GS} = 0V$	-	800	1200	mA
Transconductance	gm	$V_{DS} = 5V, I_{DS} = 500\text{mA}$	-	400	-	mS
Pinch-off Voltage	$V_p$	$V_{DS} = 5V, I_{DS} = 40\text{mA}$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -40\mu\text{A}$	-5	-	-	V
Output Power at 1dB Gain Compression Point	$P_{1dB}$	$V_{DS} = 10V$	31.5	32.5	-	dBm
Power Gain at 1dB Gain Compression Point	$G_{1dB}$	$I_{DS} \approx 0.6I_{DSS}$ $f = 14.5\text{GHz}$	5	6	-	dB
Power-added Efficiency	PAE		-	27	-	%
Thermal Resistance	$R_{th}$	Channel to Case	-	10	12	deg.C/W

**Note:** RF parameter sample size 10pcs. criteria (accept/reject)=(2/3)

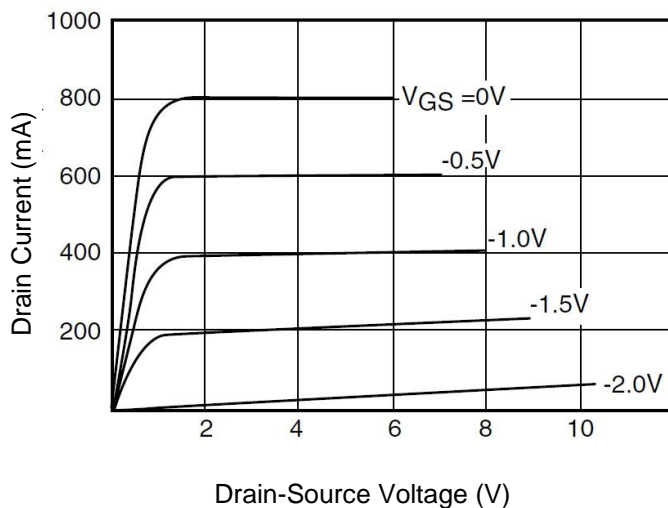
The chip must be enclosed in a hermetically sealed environment for optimum performance and reliability.

RoHS Compliance	Yes
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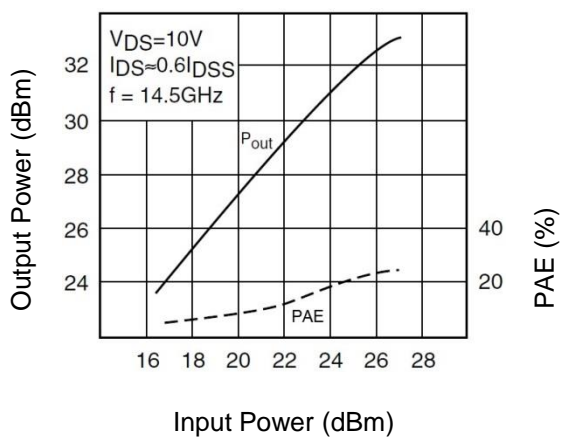
### POWER DERATING CURVE



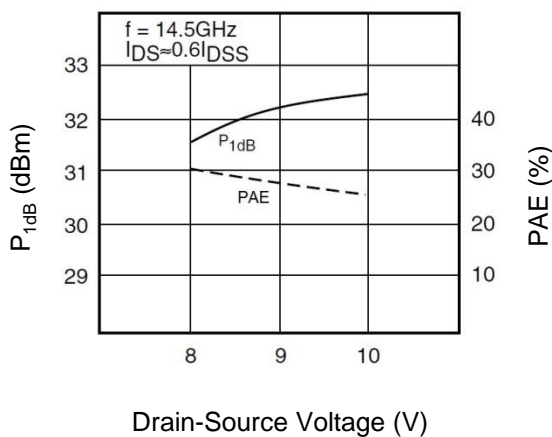
### DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



### OUTPUT POWER vs. INPUT POWER



### $P_{1dB}$ & PAE vs. $V_{DS}$



### S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 480mA$

Freq (MHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.994	-32.9	16.981	162.0	0.008	72.9	0.177	-152.4
500	0.947	-111.8	9.690	118.1	0.023	32.8	0.361	-153.8
1000	0.932	-142.9	5.469	98.1	0.026	17.4	0.414	-158.5
1500	0.929	-155.1	3.712	87.3	0.026	11.5	0.442	-158.4
2000	0.928	-161.6	2.775	79.5	0.026	8.5	0.469	-157.3
2500	0.928	-165.6	2.195	73.0	0.025	7.0	0.497	-156.1
3000	0.929	-168.4	1.799	67.2	0.024	6.3	0.526	-155.2
3500	0.930	-170.6	1.512	61.9	0.024	6.4	0.556	-154.7
4000	0.932	-172.2	1.293	57.1	0.023	7.0	0.585	-154.5
4500	0.933	-173.6	1.122	52.5	0.022	8.2	0.613	-154.6
5000	0.934	-174.7	0.984	48.3	0.022	9.8	0.639	-154.8
5500	0.935	-175.8	0.870	44.3	0.021	12.0	0.664	-155.3
6000	0.937	-176.7	0.776	40.5	0.020	14.6	0.688	-155.8
6500	0.938	-177.5	0.696	37.0	0.020	17.5	0.709	-156.5
7000	0.939	-178.3	0.628	33.7	0.020	20.8	0.729	-157.1
7500	0.940	-179.0	0.569	30.6	0.020	24.3	0.748	-157.9
8000	0.941	-179.6	0.518	27.7	0.020	27.8	0.764	-158.6
8500	0.942	-179.7	0.474	25.0	0.020	31.5	0.780	-159.4
9000	0.943	-179.1	0.435	22.4	0.020	35.0	0.794	-160.1
9500	0.944	-178.5	0.400	20.0	0.020	38.4	0.806	-160.8
10000	0.945	-178.0	0.369	17.8	0.021	41.6	0.818	-161.5
10500	0.945	-177.4	0.342	15.7	0.022	44.6	0.829	-162.2
11000	0.946	-176.9	0.317	13.7	0.022	47.4	0.838	-162.9
11500	0.947	-176.4	0.295	11.9	0.023	49.9	0.847	-163.6
12000	0.947	-175.9	0.275	10.2	0.024	52.2	0.856	-164.2
12500	0.948	-175.4	0.257	8.6	0.025	54.2	0.863	-164.8
13000	0.948	-174.9	0.241	7.2	0.026	56.1	0.870	-165.4
13500	0.949	-174.5	0.226	5.9	0.027	57.7	0.876	-166.0
14000	0.949	-174.0	0.212	4.7	0.028	59.2	0.882	-166.5
14500	0.949	-173.5	0.199	3.6	0.029	60.5	0.887	-167.1
15000	0.950	-173.1	0.188	2.6	0.030	61.6	0.892	-167.6
15500	0.950	-172.7	0.177	1.7	0.031	62.7	0.897	-168.1
16000	0.950	-172.2	0.167	1.0	0.033	63.6	0.901	-168.6
16500	0.951	-171.8	0.158	0.3	0.034	64.4	0.905	-169.0
17000	0.951	-171.4	0.149	-0.2	0.035	65.1	0.909	-169.5
17500	0.951	-170.9	0.141	-0.6	0.036	65.8	0.912	-169.9
18000	0.951	-170.5	0.134	-0.9	0.037	66.3	0.915	-170.4
18500	0.952	-170.1	0.127	-1.1	0.039	66.9	0.918	-170.8
19000	0.952	-169.7	0.121	-1.2	0.040	67.3	0.921	-171.2
19500	0.952	-169.3	0.115	-1.1	0.041	67.7	0.923	-171.6
20000	0.952	-168.9	0.109	-1.0	0.042	68.0	0.925	-171.9

NOTE:\* The data includes bonding wires.

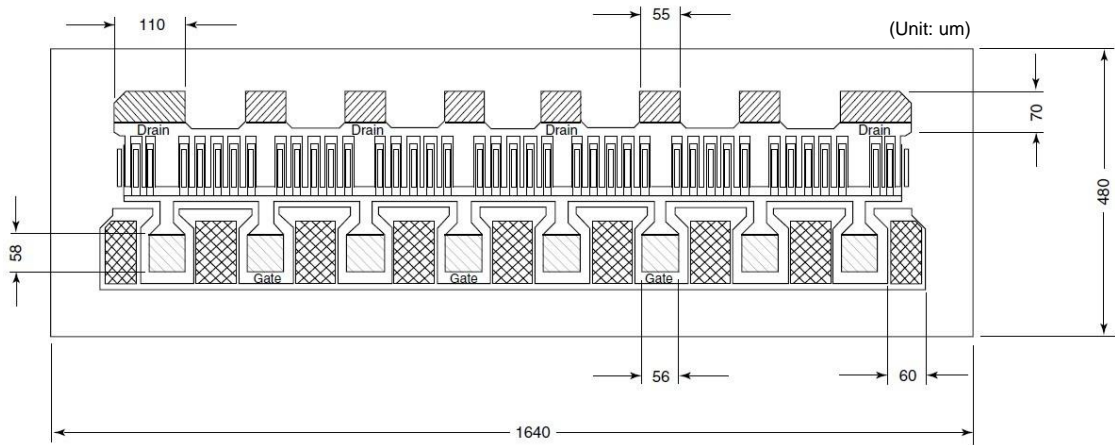
n: number of wires

Gate  
Drain

n=8 (0.2mm length, 25um Dia Au wire)


n=8 (0.2mm length, 25um Dia Au wire)

### CHIP OUTLINE



Source electrodes are connected to the PHS by Via-Hole

Die Thickness:  $60 \pm 20\mu\text{m}$

 (Via-Hole)

**■ BARE DIE INDEMNIFICATION**

All devices are DC probed and visually inspected at SEI, and non-compliant devices are removed. The RF electrical characteristics of the bare dice are warranted by the sampling inspection procedures. The standard sampling inspection procedure shall include the number of the sampling dice, position of the sampling dice in the wafer and RF electrical characteristics of the sampling dice measured in the test fixture. Customer shall understand that all the bare dice will not be 100% RF tested by SEI. It is the customer responsibility to verify performance of the devices.

Customer shall comply with the storage and handling requirements for condition and period of storage of the bare dice agreed by customer and SEI. Warranty will not apply when customer disregards the storage and handling requirements.

Warranty will not apply to the electrical characteristics and product quality to the bare dice after assembly by customer.

SEI will indemnify customer for warranty failures, provided however that the indemnification to customer shall be limited to supply of bare dice for substitution.

**CAUTION**

Sumitomo Electric Device Innovations, Inc. products contain **gallium arsenide (GaAs)** which can be hazardous to the human body and the environment. For safety, observe the following procedures:

- Do not put these products into the mouth.
- Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.
- Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.