

RSF05G1-1P,RSF05G1-3P,RSF05G1-5P

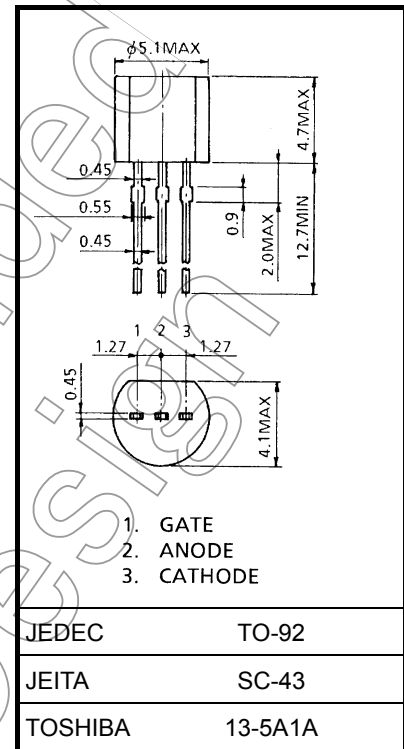
LOW POWER SWITCHING AND CONTROL APPLICATIONS

Unit: mm

- Repetitive Peak Off-State Voltage : $V_{DRM} = 400V$
- Repetitive Peak Reverse Voltage : $V_{RRM} = 400V$
- Average On-State Current : $I_T(AV) = 500mA$
- Plastic Mold Type
- Reduce a Quantity of Parts and Manufacturing Process Because of Built-in RGK : $RGK = 1k\Omega, 2.7k\Omega, 5.1k\Omega$ (Typical)

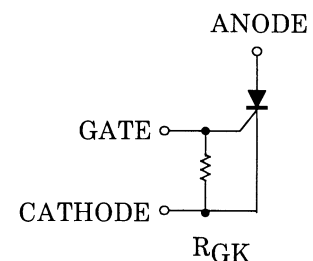
Absolute Maximum Ratings

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	RSF05G1-1P	400	V
	RSF05G1-3P	400	
	RSF05G1-5P	400	
Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms, $T_j = 0 \sim 125^\circ C$)	RSF05G1-1P	500	V
	RSF05G1-3P	500	
	RSF05G1-5P	500	
Average On-State Current (Half Sine Waveform)	$I_{T(AV)}$	500	mA
R.M.S. On-State Current	$I_{T(RMS)}$	800	mA
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	9 (50Hz)	A
		10 (60Hz)	
I^2t Limit Value	I^2t	0.4	A^2s
Critical Rate of Rise of On-State Current	di/dt	10	$A/\mu s$
Peak Gate Power Dissipation	P_{GM}	0.1	W
Average Gate Power Dissipation	$P_{G(AV)}$	0.01	W
Peak Forward Gate Voltage	V_{FGM}	3.5	V
Peak Reverse Gate Voltage	V_{RGM}	-5	V
Peak Forward Gate Current	I_{GFM}	125	mA
Junction Temperature	T_j	-40~125	$^\circ C$
Storage Temperature	T_{stg}	-40~125	$^\circ C$



Weight: 0.2 g (typ.)

Equivalent Circuit



Note 1: di/dt Test Condition, $i_G = 5mA$, $t_{gw} = 10\mu s$, $t_{gr} \leq 250ns$

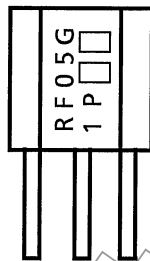
Note 2: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings. Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Electrical Characteristics (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Repetitive Peak Off-State Current and Repetitive Peak Reverse Current		I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM} = \text{Rated}$	—	—	10	μA
Peak On-State Voltage		V_{TM}	$I_{TM} = 1\text{A}$	—	—	1.5	V
Gate Trigger Voltage		V_{GT}	$V_D = 6\text{V}, R_L = 100\Omega$	0.4	—	0.8	V
Gate Trigger Current	RSF05G1-1P	I_{GT}		400	700	1000	μA
	RSF05G1-3P			150	250	400	
	RSF05G1-5P			80	160	250	
Holding Current	RSF05G1-1P	I_H	$I_{TM} = 1\text{A}, V_D = 6\text{V}$	—	—	6	mA
	RSF05G1-3P			—	—	3	
	RSF05G1-5P			—	—	2	
Resistor Between Gate and Cathode	RSF05G1-1P	R_{GK}		700	1000	1300	Ω
	RSF05G1-3P			1890	2700	3510	
	RSF05G1-5P			3570	5100	6630	
Critical Rate of Rise of Off-State Voltage	RSF05G1-1P	dv / dt	$V_{DRM} = \text{Rated}$ Exponential Rise	—	200	—	V / μs
	RSF05G1-3P			—	70	—	
	RSF05G1-5P			—	40	—	
Gate Turn-On Time		t_{gt}	$V_D = \text{Rated}, i_G = 5\text{mA}$	—	—	1.5	μs
Thermal Resistance	Junction to Lead	$R_{th(j-l)}$	DC	—	—	40	$^{\circ}\text{C} / \text{W}$
	Junction to Ambient	$R_{th(j-a)}$		—	—	180	

Marking

Example : It is mark of RSF05G1-1P



Lot Number



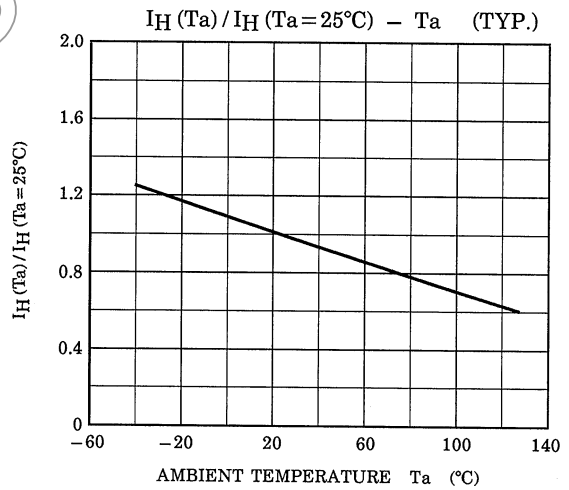
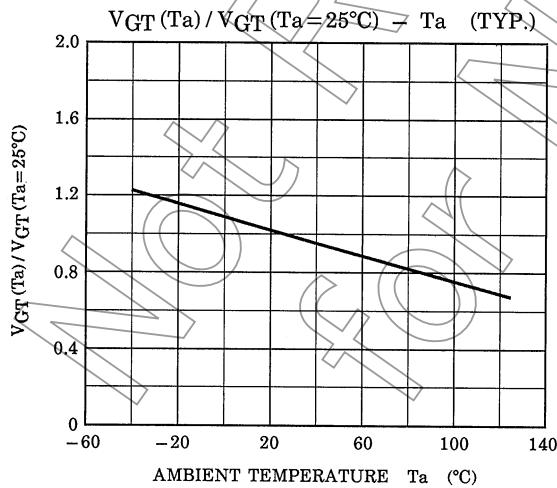
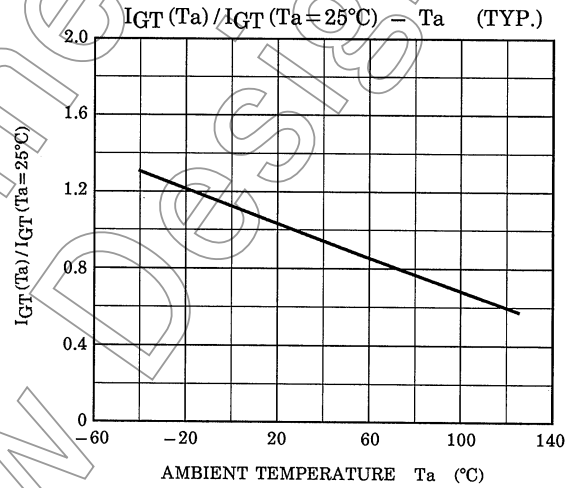
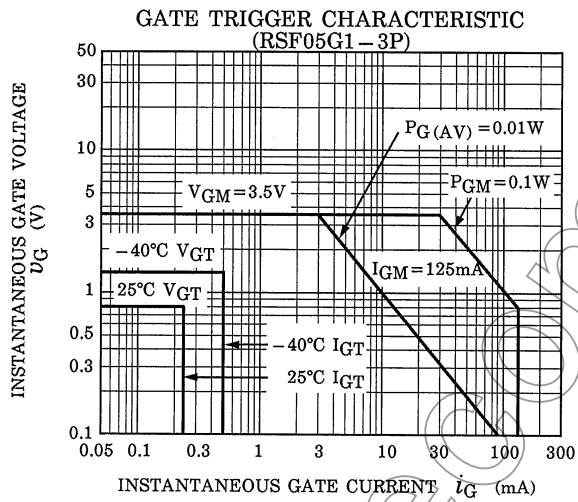
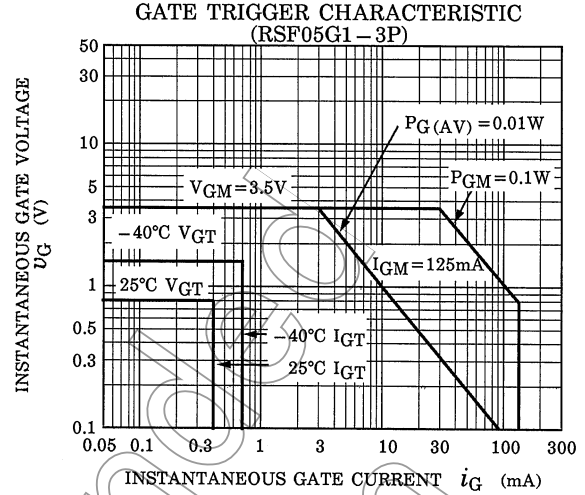
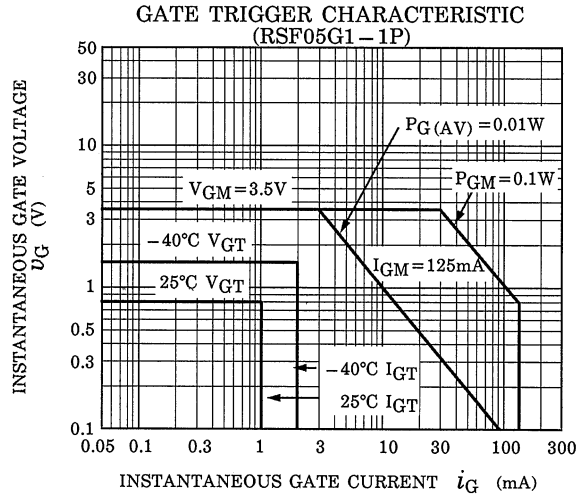
Month (Starting from Alphabet A)

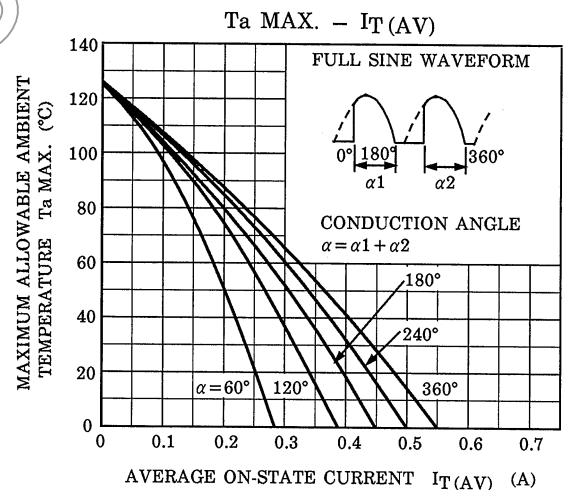
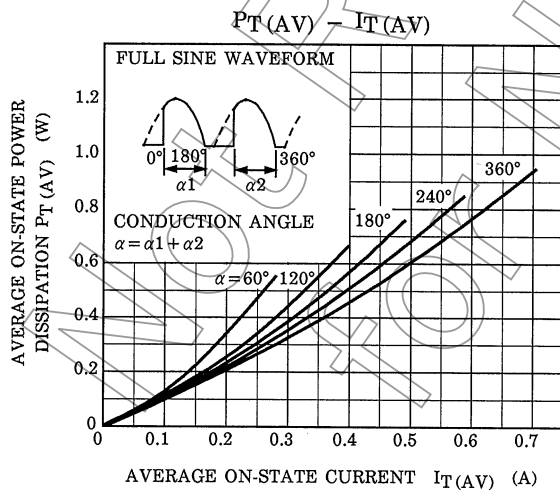
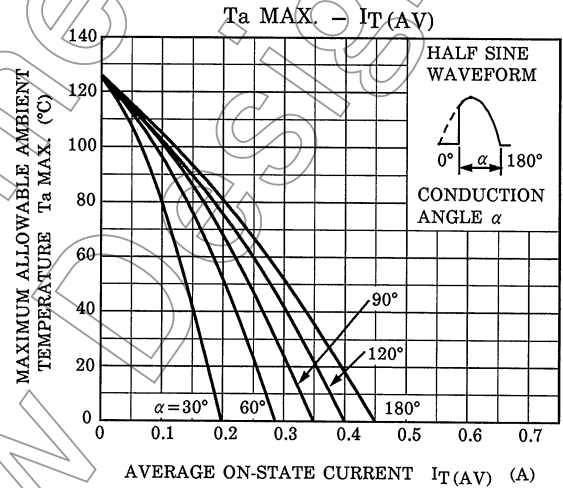
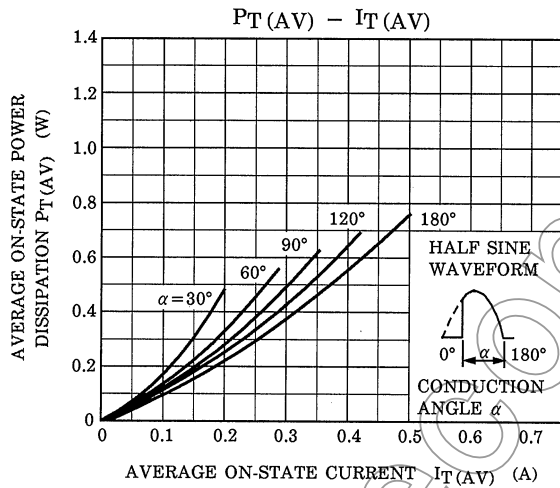
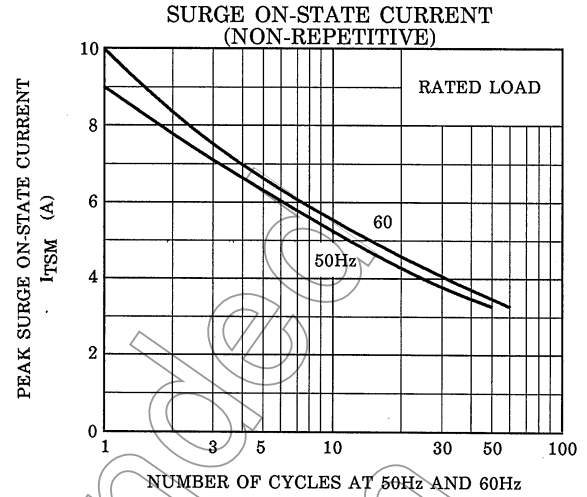
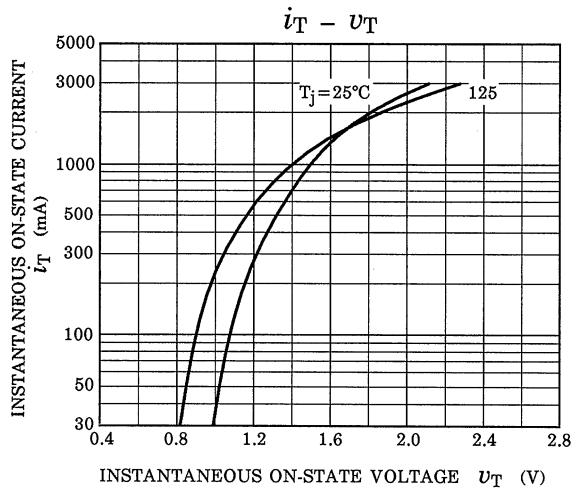
Year (Last Decimal Digit of the Current Year)

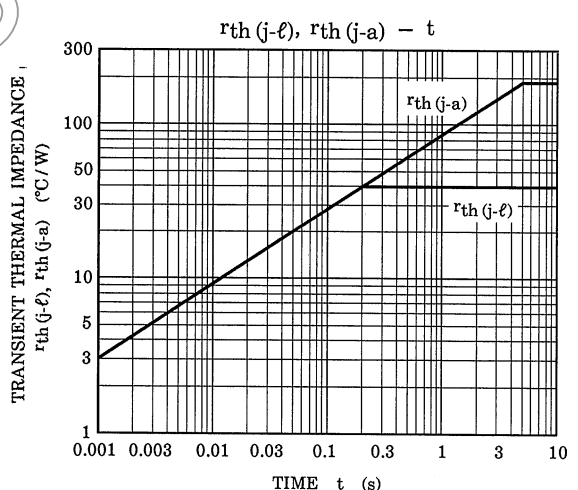
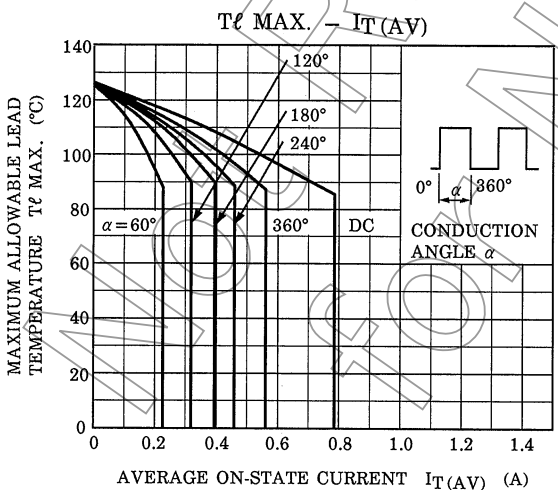
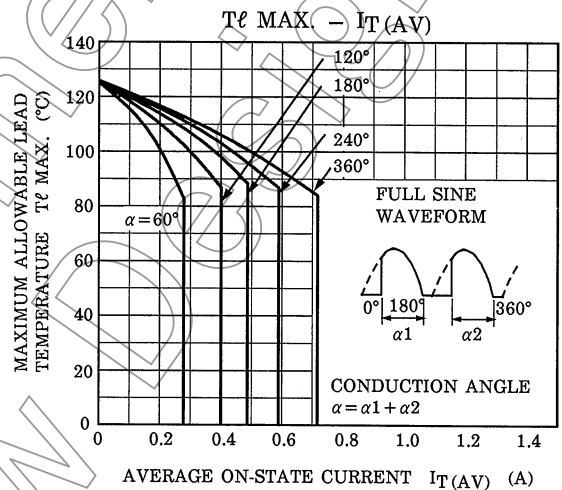
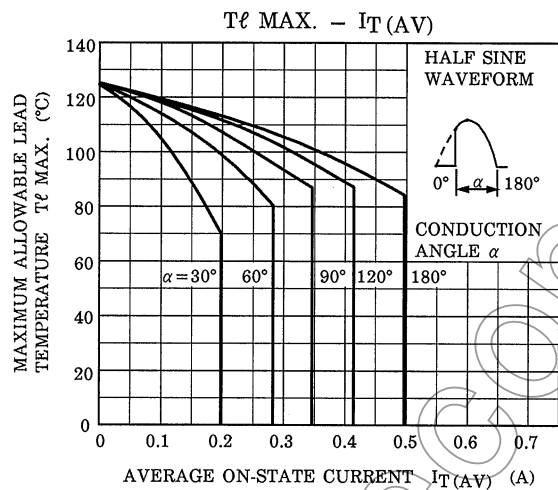
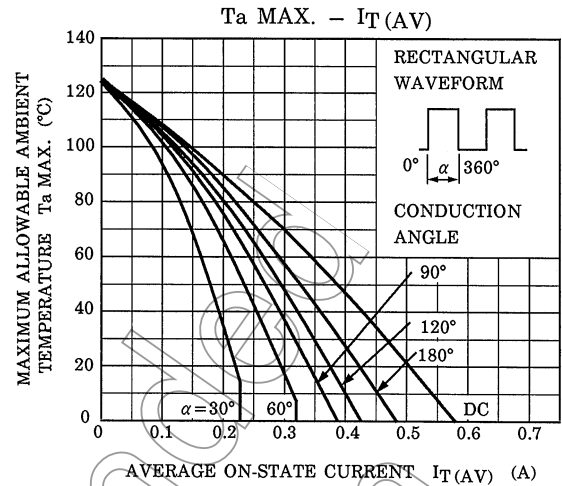
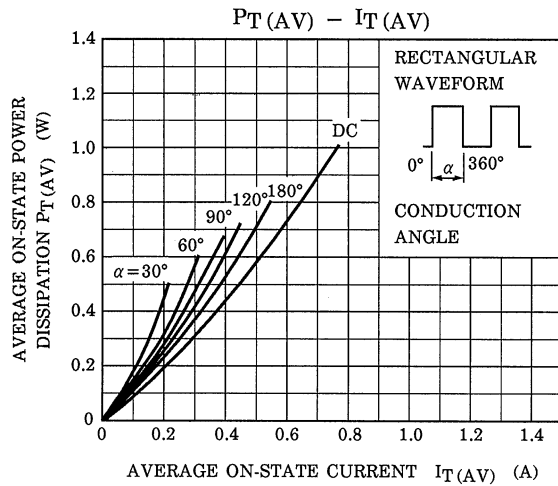
Example 8A : January 1998

8B : February 1998

8L : December 1998







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