

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

LOW POWER SWITCHING AND CONTROL APPLICATIONS

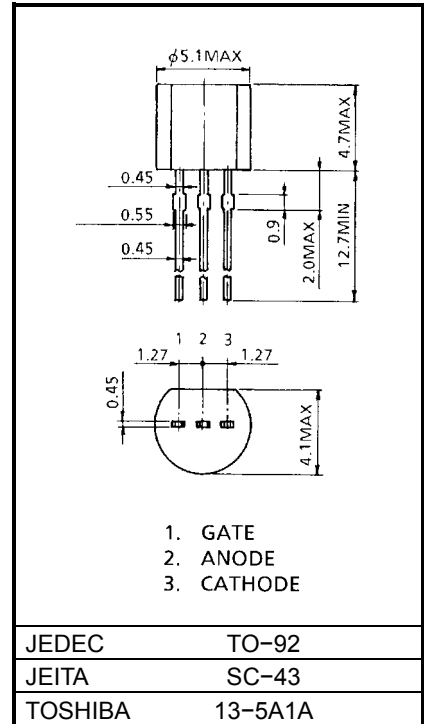
- Repetitive Peak Off-State Voltage : $V_{DRM} = 400V$
 Repetitive Peak Reverse Voltage : $V_{RRM} = 400V$
- Average On-State Current : $I_T(AV) = 500mA$
- Plastic Mold Type
- Reduce a Quantity of Parts and Manufacturing Process Because of Built-in RGK : $RGK = 1k\Omega, 2.7k\Omega, 5.1k\Omega$ (Typical)

MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	RSF05G1-1P	V_{DRM} V_{RRM}	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	V_{DSM}	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_{GM}	125	mA
Junction Temperature		T_j	-40~125	$^\circ C$
Storage Temperature		T_{stg}	-40~125	$^\circ C$

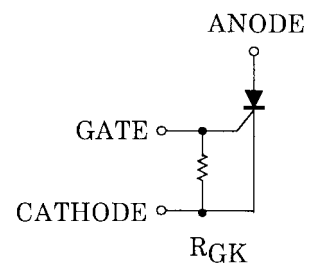
Note: di/dt Test Condition, $i_G = 5mA$, $t_{gw} = 10\mu s$, $t_{gr} \leq 250ns$

Unit: mm



Weight: 0.2g

EQUIVALENT CIRCUIT

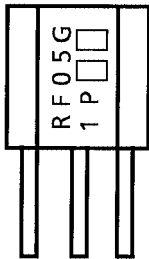


ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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



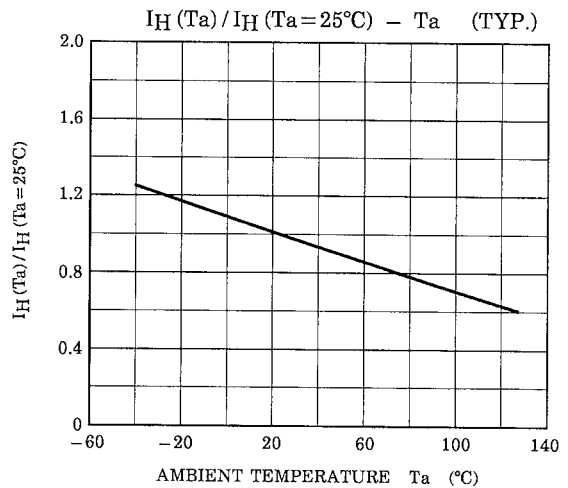
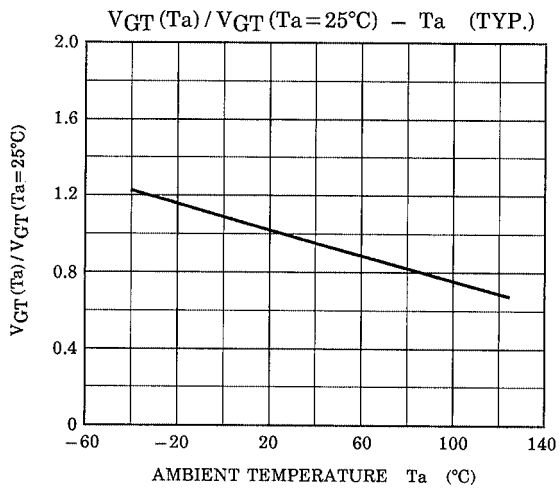
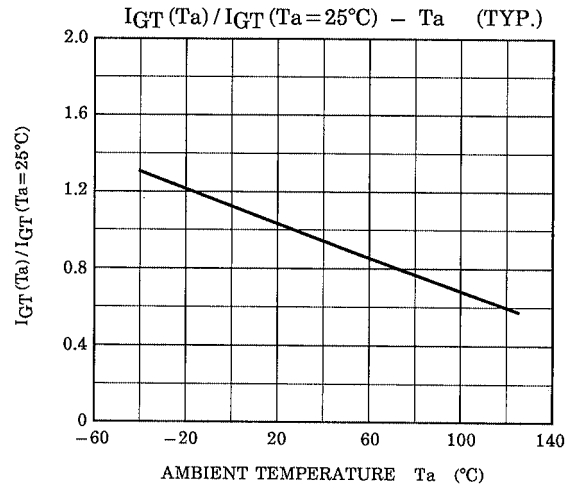
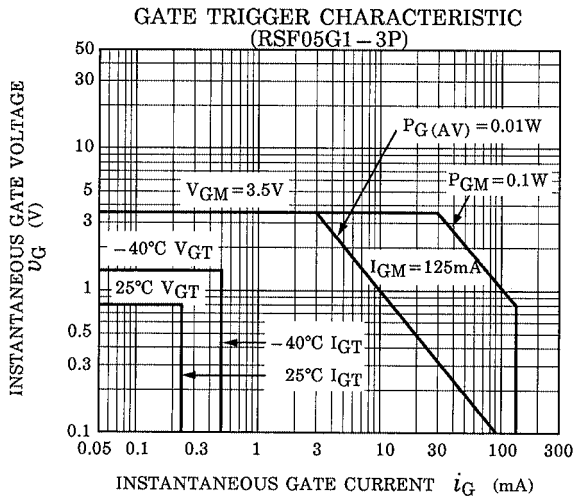
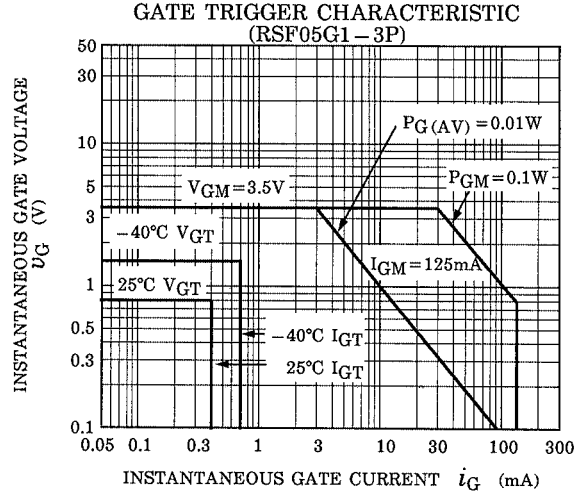
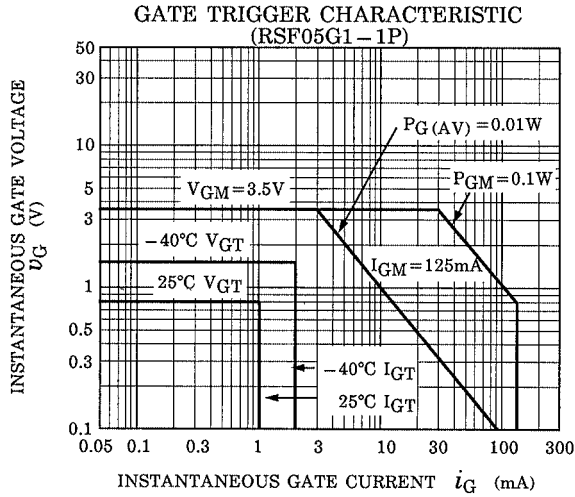
Month (Starting from Alphabet A)

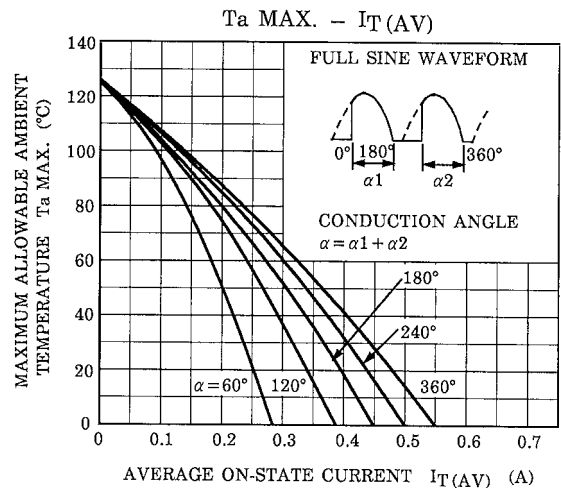
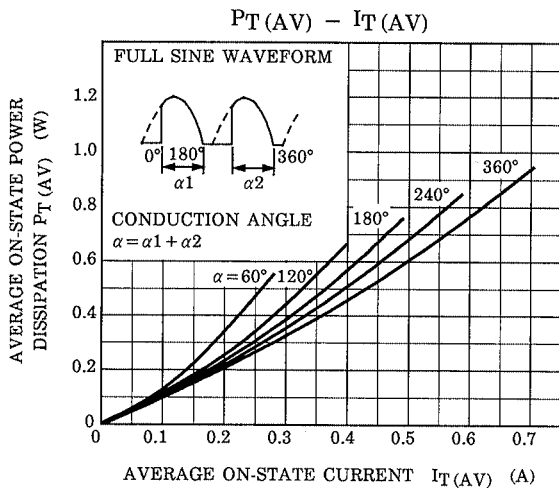
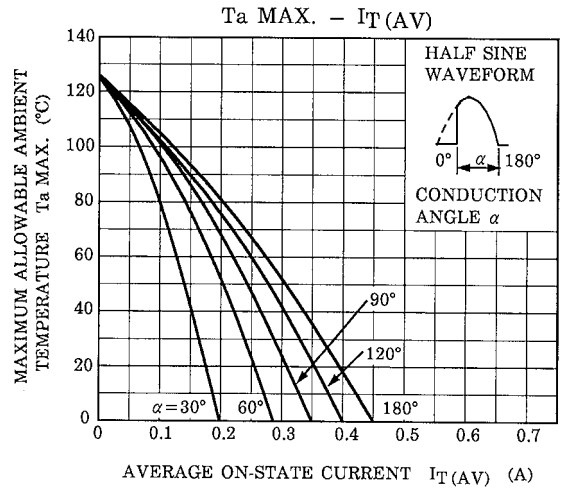
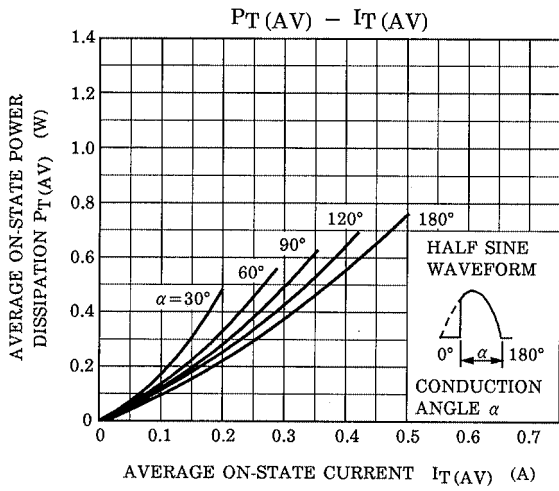
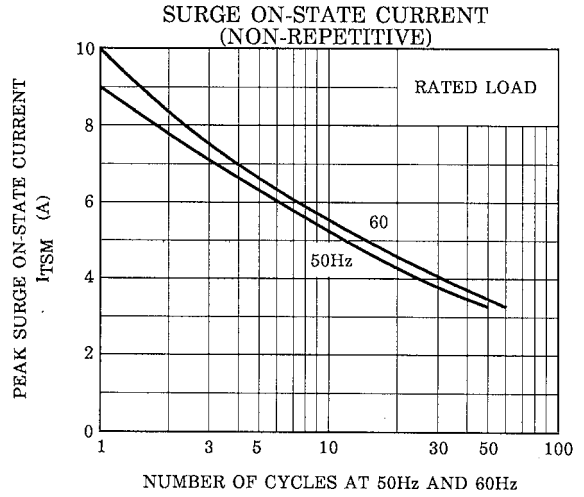
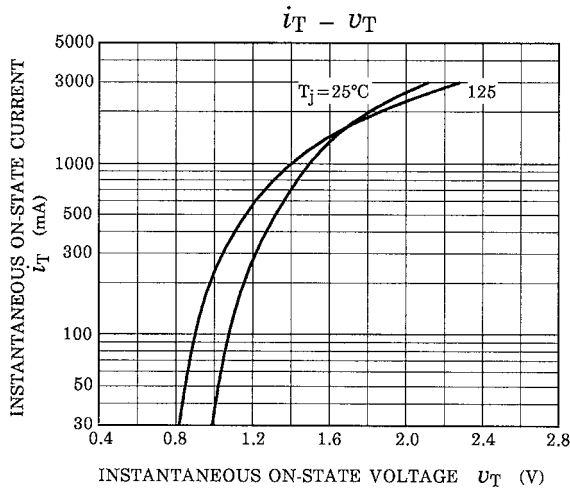
Year (Last Decimal Digit of the Current Year)

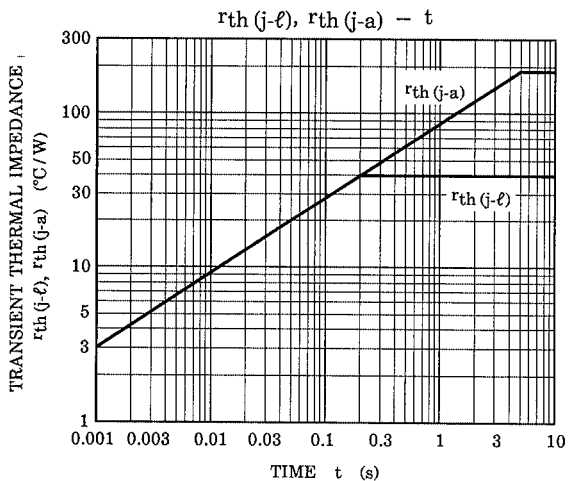
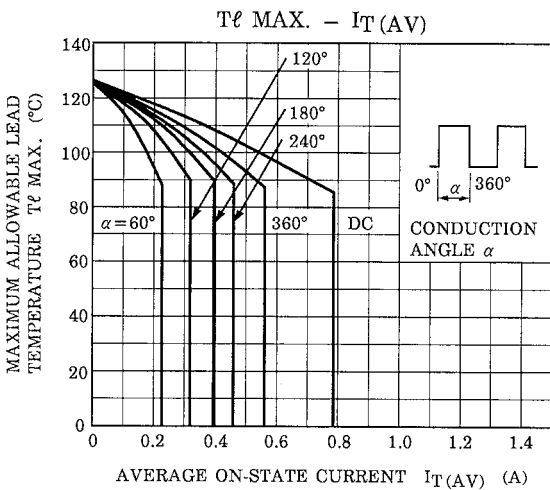
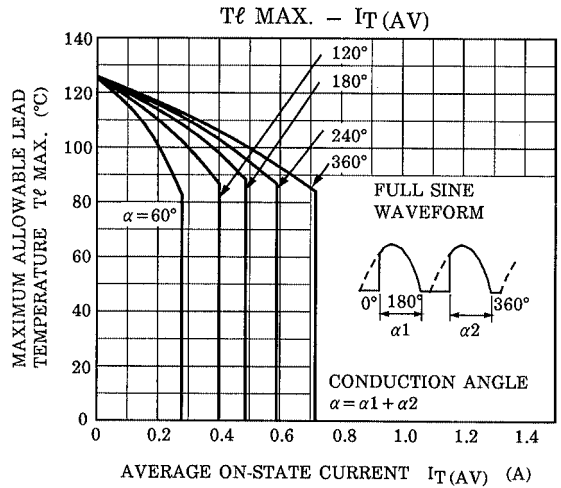
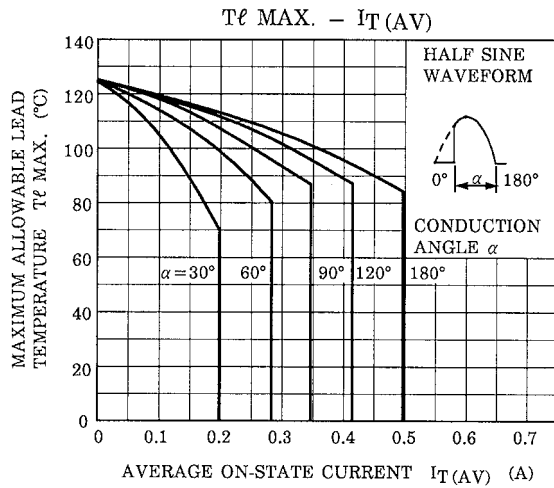
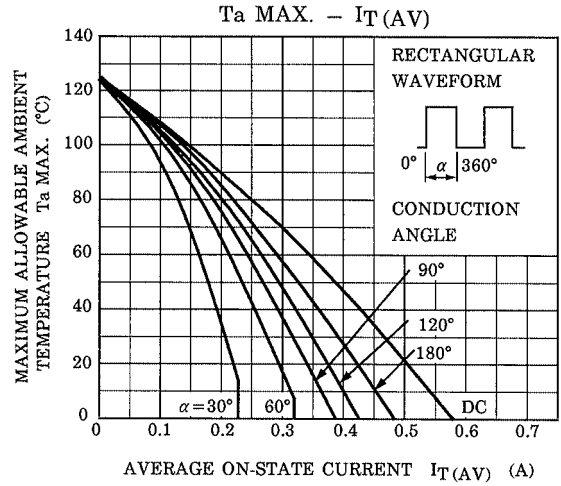
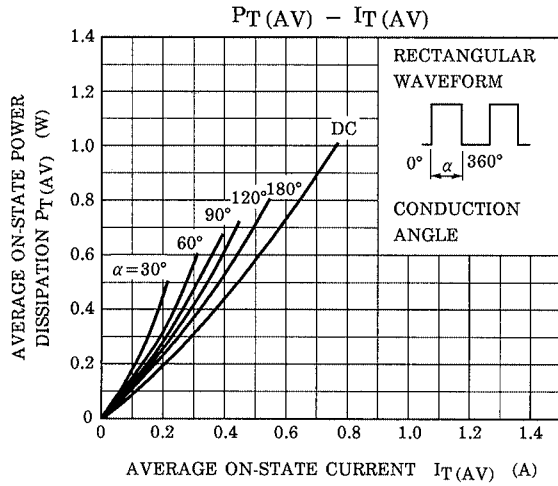
Example 8A : January 1998

8B : February 1998

8L : December 1998







RESTRICTIONS ON PRODUCT USE

000707EAA

- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.
In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..
- The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer's own risk.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.