

SCRs

1.6 Amp, Planar

2N5724-2N5728

FEATURES

- Maximum Gate Trigger Current: 20 μ A
- Closely Controlled Gate Trigger Voltage: .44 to .6V
- Operating Current Range: 2mA to 1.6A
- Voltage Ratings: to 400V
- Low On-State Voltage
- Specified for dv/dt and Switching Time

DESCRIPTION

These devices are intended for general purpose usage in Military/aerospace or severe industrial environments. Major design parameters are specified at the temperature extremes, thus permitting worst case design on the basis of guaranteed values. These devices undergo 100% preconditioning, which includes high temperature storage and temperature cycling followed by a fine leak test as a regular part of the manufacturing procedure.

The high voltage types of the 2N5724 series are especially useful as pulse modulator switches in low to medium power pulse modulator applications. Specific parameters such as rise time, delay time, holding current, and recovery time can be selected for optimum performance in a pulse modulator circuit.

ABSOLUTE MAXIMUM RATINGS

	2N5724	2N5725	2N5726	2N5727	2N5728
Repetitive Peak Off-State Voltage, V_{DRM}	60V	100V	200V	300V	400V
Repetitive Peak Reverse Voltage, V_{KKM}	60V	100V	200V	300V	400V
Non-Repetitive Peak Off-State Voltage, V_{DSM}			500V		
D.C. On-State Current, I_T					
75°C Ambient			450mA		
85°C Case			1.6A		
Repetitive Peak On-State Current, I_{TRM}			up to 30A		
Peak One Cycle Surge (Non-Rep.) On-State Current, I_{TSM}			15A		
Peak Gate Current, I_{GM}			250mA		
Average Gate Current, $I_{G(AV)}$			25mA		
Reverse Gate Current, I_{GR}			3mA		
Reverse Gate Voltage, V_{GR}			6V		
Operating and Storage Temperature Range			-65°C to +150°C		

MECHANICAL SPECIFICATIONS

2N5724-2N5728

	ins.	mm.
A	305-335	7.75-8.51
B	335-370	8.51-9.40
C	±.40 ±.00	±.00 ±.00
D	.010-.030	.25-.76
E	5 MIN.	12.70 MIN.
F	.017 ± .002 .001	.432 ± .051 .025
G	.200	5.08
H	.100	2.54
J	.031±.003	.79±.08
K	.029-.045	.74-1.14
L	.100	2.54

TO-205AD (TO-39)

ELECTRICAL SPECIFICATIONS

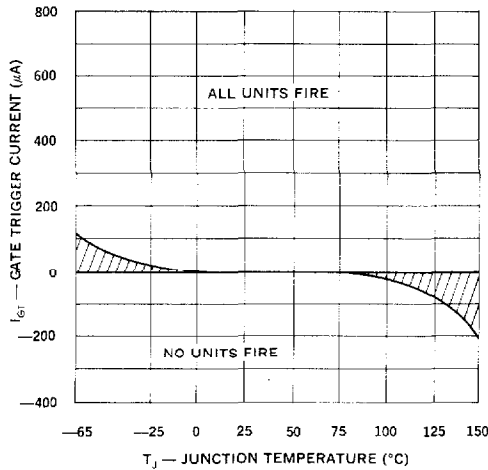
Test	Symbol	Min.	Typical	Max.	Units	Test Conditions
SUBGROUP 1 Visual and Mechanical						
SUBGROUP 2 (25°C TESTS)						
Off-State Current	I_{DRM}	—	.05	0.1	μA	$R_{GK} = 1K, V_{DRM} = \text{Rating}$
Reverse Current	I_{RRM}	—	.05	0.1	μA	$R_{GK} = 1K, V_{RRM} = \text{Rating}$
Reverse Gate Voltage	V_{GR}	5	8	—	V	$I_{GR} = 0.1mA$
Gate Trigger Current	I_{GT}	—	2	20	μA	$R_{GS} = 10K, V_D = 5V$
Gate Trigger Voltage	V_{GT}	0.44	0.5	0.6	V	$R_{GS} = 100\Omega, V_D = 5V$
On-State Voltage	V_T	—	2.3	2.5	V	$I_T = 5A$ (pulse test)
Holding Current	I_H	0.3	0.8	2.0	mA	$R_{GK} = 1K, V_D = 5V$
SUBGROUP 3 (25°C TESTS)						
Off-State Voltage — Critical Rate of Rise	dv/dt	100	150	—	$v/\mu s$	$R_{GK} = 1K, V_D = 30V$
Gate Trigger — on Pulse Width	t_{pg} (on)	—	0.1	0.5	μs	$I_G = 10mA, I_T = 1A, V_D = 30V$
Delay Time	t_d	—	0.1	—	μs	$I_G = 10mA, I_T = 1A, V_D = 30V$
Rise Time	t_r	—	0.3	—	μs	$I_G = 10mA, I_T = 1A, V_D = 30V$
Circuit Commutated Turn-off Time	t_q	—	15	30	μs	$I_T = 1A, I_R = 1A, R_{GK} = 1K$
			30	50	μs	
SUBGROUP 4 (150°C TESTS)						
High Temp. Off-State Current	I_{DRM}	—	50	200	μA	$R_{GK} = 1K, V_{DRM} = \text{Rating}$
High Temp. Reverse Current	I_{RRM}	—	80	200	μA	$R_{GK} = 1K, V_{RRM} = \text{Rating}$
High Temp. Gate Trigger Voltage	V_{GT}	0.10	0.15	—	V	$R_{GS} = 100\Omega, V_D = 5V$
High Temp. Holding Current	I_H	0.10	0.15	—	mA	$R_{GK} = 1K, V_D = 5V$
SUBGROUP 5 (—65°C TESTS)						
Low Temp. Gate Trigger Voltage	V_{GT}	—	0.7	0.9	V	$R_{GS} = 100\Omega, V_D = 5V$
Low Temp. Gate Trigger Current	I_{GT}	—	50	125	μA	$R_{GS} = 10K, V_D = 5V$
Low Temp. Holding Current	I_H	—	1.2	3.0	mA	$R_{GK} = 1K, V_D = 5V$

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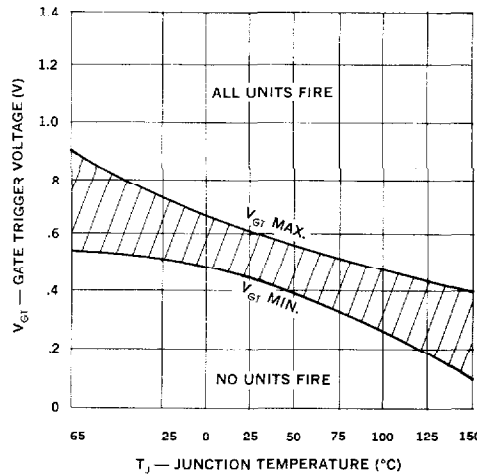
Note 1 See rating curves for full rating information.

Note 2 Blocking voltage ratings apply over the full operating temperature range, provided the gate is connected to the cathode through a resistor, 1K or smaller, or other adequate gate bias is used.

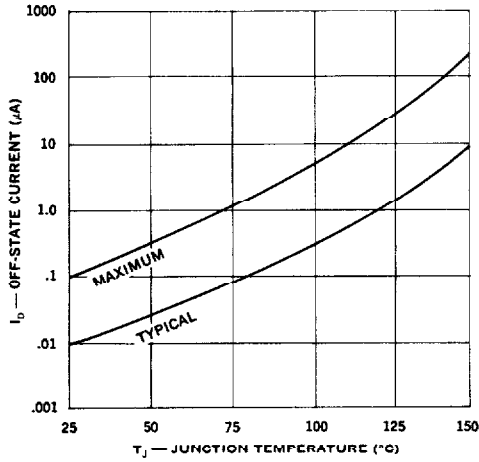
Gate Trigger Current



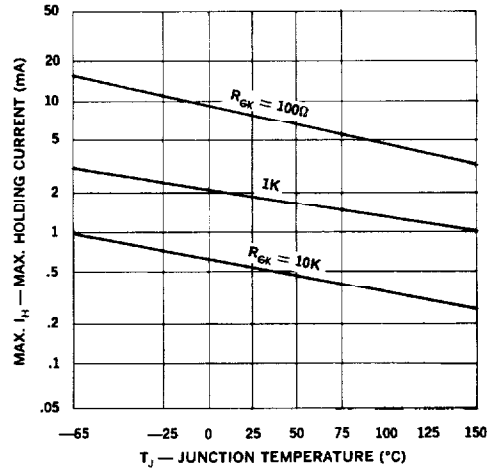
Gate Trigger Voltage



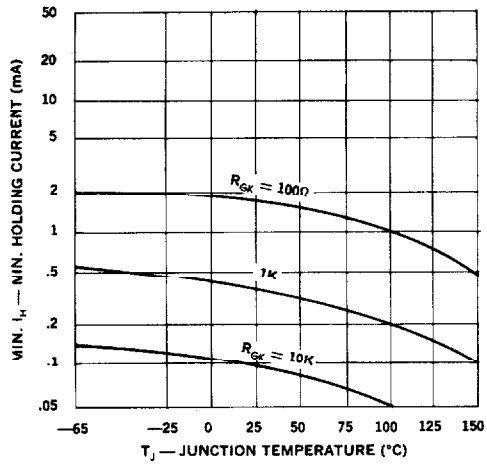
Off-State Current



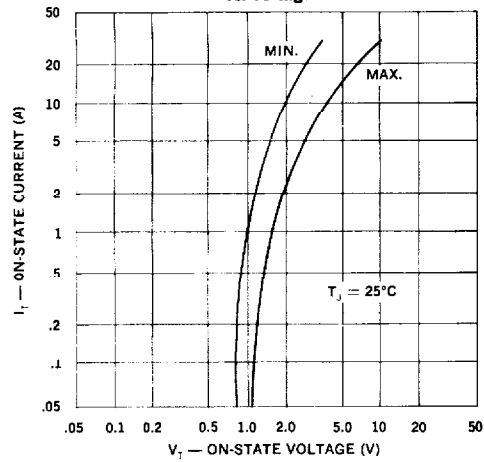
Max. Holding Current

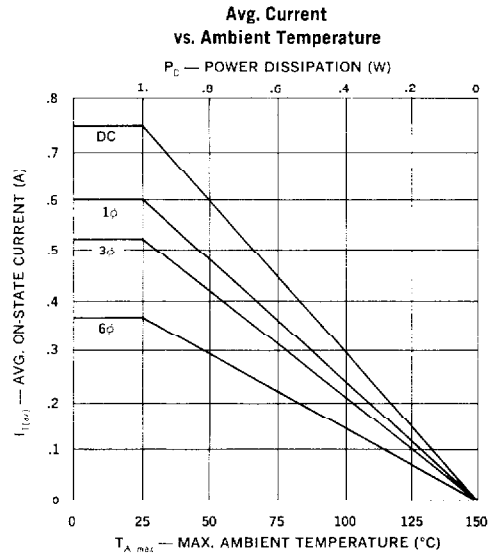
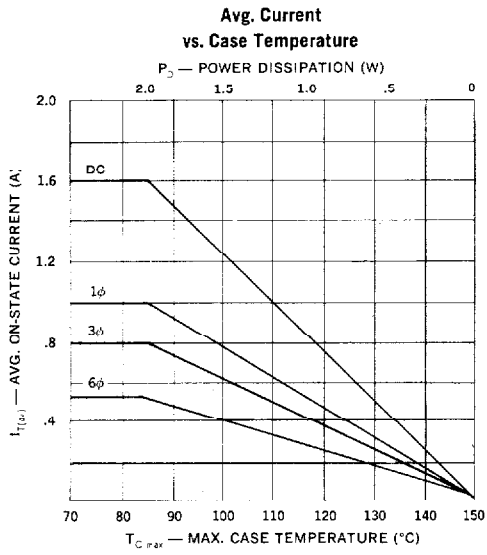


Min. Holding Current



On-State Current vs. Voltage





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Surge Current

