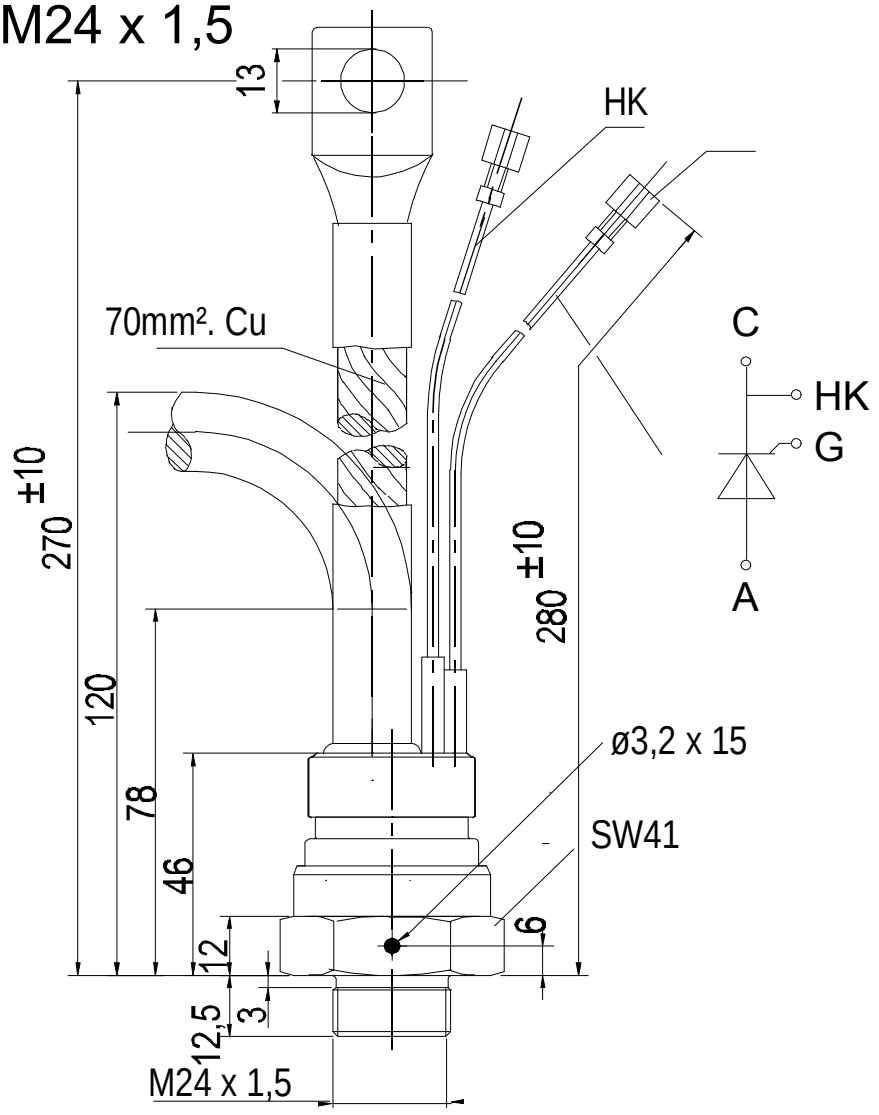
European Power-
Semiconductor and
Electronics Company

Marketing Information
T 370 N

SW41 /M24 x 1,5



VWK June

T 370 N

Elektrische Eigenschaften / Electrical properties

Höchstzulässige Werte / Maximum rated values

Periodische Vorwärts- und Rückwärts-Spitzensperrspannung	repetitive peak forward off-state and reverse voltages	t_{vj} = -40°C...$t_{vj\,max}$	V_{DRM}, V_{RRM}	600 800 1000 1200 1400 1600 1800	V
Vorwärts-Stoßspitzensperrspannung	non-repetitive peak forward off-state voltage	t_{vj} = -40°C...$t_{vj\,max}$	$V_{DSM} = V_{DRM}$	600 800 1000 1200 1400 1600 1800	V
Rückwärts-Stoßspitzensperrspannung	non-repetitive peak reverse voltage	t_{vj} = +25°C...$t_{vj\,max}$	$V_{RSM} = V_{RRM}$	700 900 1100 1300 1500 1700 1900	V
Durchlaßstrom-Grenzeffektivwert	RMS on-state current		I_{TRMSM}	650	A
Dauergrenzstrom	average on-state current	t_c = 85°C	I_{TAVM}	370	A
		t_c = 79°C		414	A
Stoßstrom-Grenzwert	surge current	t_{vj} = 25°C, t_p = 10 ms	I_{TSM}	9400	A
		$t_{vj} = t_{vj\,max}$, t_p = 10 ms		8000	A
Grenzlastintegral	I^2t-value	t_{vj} = 25°C, t_p = 10 ms	I^2t	442	kA^2s
		$t_{vj} = t_{vj\,max}$, t_p = 10 ms		320	kA^2s
Kritische Stromsteilheit	critical rate of rise of on-state current	$v_D \leq$ 67%, v_{DRM}, f = 50 Hz i_{GM}= 1 A, di_G/dt = 1 A/µs	$(di_T/dt)_{cr}$	200	A/µs
Kritische Spannungssteilheit	critical rate of rise of off-state voltage	$t_{vj} = t_{vj\,max}$, v_D = 67% V_{DRM}	$(dv/dt)_{cr}$	1000	V/µs

Charakteristische Werte / Characteristic values

Durchlaßspannung	on-state voltage	$t_{vj} = t_{vj\,max}$, i_T = 1200 A	v_T	max. 1,65	V
Schleusenspannung	threshold voltage	$t_{vj} = t_{vj\,max}$	$V_{T(TO)}$	0,8	V
Ersatzwiderstand	slope resistance	$t_{vj} = t_{vj\,max}$	r_T	0,5	mΩ
Zündstrom	gate trigger current	t_{vj} = 25 °C, v_D = 6 V	I_{GT}	max. 250	mA
Zündspannung	gate trigger voltage	t_{vj} = 25 °C, v_D = 6 V	V_{GT}	max. 2,2	V
Nicht zündender Steuerstrom	gate non-trigger current	$t_{vj} = t_{vj\,max}$, v_D = 6 V	I_{GD}	max. 10	mA
Nicht zündende Steuerspannung	gate non-trigger voltage	$t_{vj} = t_{vj\,max}$, v_D = 0,5 V_{DRM}	V_{GD}	max. 0,2	V
Haltestrom	holding current	t_{vj} = 25 °C, v_D = 6 V, R_A = 5 Ω	I_H	max. 300	mA
Einraststrom	latching current	t_{vj} = 25 °C,v_D = 6 V, R_{GK} > 10 Ω i_{GM} = 1 A, di_G/dt = 1 A/µs, t_g = 20 µs	I_L	max. 1,2	A
Vorwärts- und Rückwärts-Sperrstrom	forward off-state and reverse currents	$t_{vj} = t_{vj\,max}$, $v_D = V_{DRM}$, $v_R = V_{RRM}$	i_D, i_R	max. 50	mA
Zündverzug	gate controlled delay time	t_{vj}=25°C, i_{GM} = 1 A, di_G/dt = 1 A/µs	t_{gd}	max. 4	µs
Freiwerdezeit	circuit commutated turn-off time	siehe Techn.Erl./see Techn. Inf.	t_q	typ. 250	µs

Thermische Eigenschaften / Thermal properties

Innerer Wärmewiderstand	thermal resistance, junction to case	Θ =180° el, sin	R_{thJC}	max. 0,085	°C/W
		DC		max. 0,082	°C/W
Höchstzul.Sperrschichttemperatur	max. junction temperature		$t_{vj\,max}$	125	°C
Betriebstemperatur	operating temperature		$t_{c\,op}$	-40...+125	°C
Lagertemperatur	storage temperature		t_{stg}	-40...+150	°C

Mechanische Eigenschaften / Mechanical properties

Si-Elemente mit Druckkontakt	Si-pellet with pressure contact				
Anzugsdrehmoment	mounting torque		M	60	Nm
Gewicht	weight		G	typ. 620	g
Kriechstrecke	creepage distance			12	mm
Feuchteklasse	humidity classification	DIN 40040			C
Schwingfestigkeit	vibration resistance	f = 50 Hz		50	m/s²
Maßbild, anliegend	outline, attached				

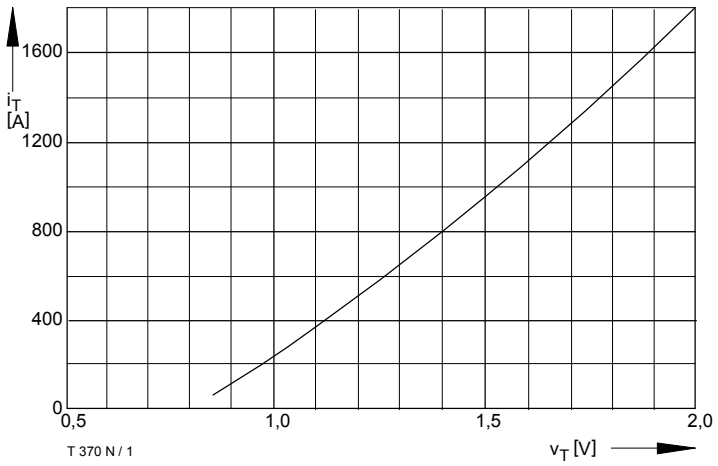


Bild / Fig. 1
Grenzdurchlaßkennlinie / Limiting on-state characteristic
$i_T = f(v_T)$, $t_{vj} = t_{vj\ max}$

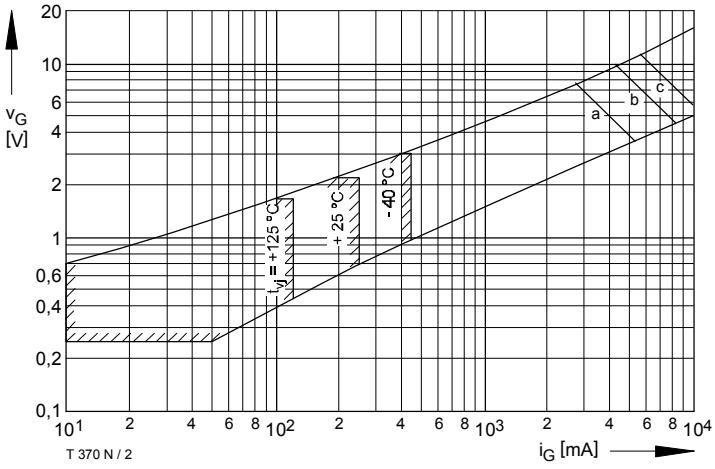


Bild / Fig. 2
Steuercharakteristik mit Zündbereichen / Gate characteristic with trigging areas $v_G = f(i_G)$, V_D = 6 V

Parameter:		a	b	c
Steuerimpulsdauer / trigger puls duration t_g	[ms]	10	1	0,5
Höchstzulässige Spitzensteuerverlustleistung / Max. rated peak gate power dissipation	[W]	20	40	60

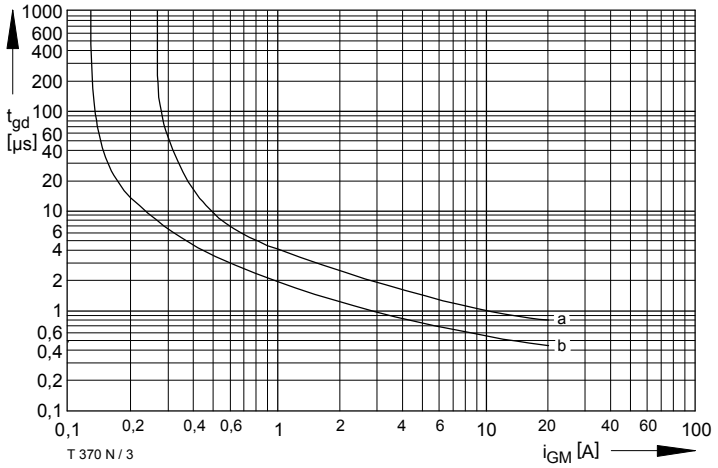


Bild / Fig. 3
Zündverzug / Gate controlled delay time $t_{gd} = f(i_{GM})$
t_{vj} = 25 °C, $di_G/dt = i_{GM}/1µs$
a - Maximaler Verlauf / Limiting characteristic
b - Typischer Verlauf / Typical characteristic

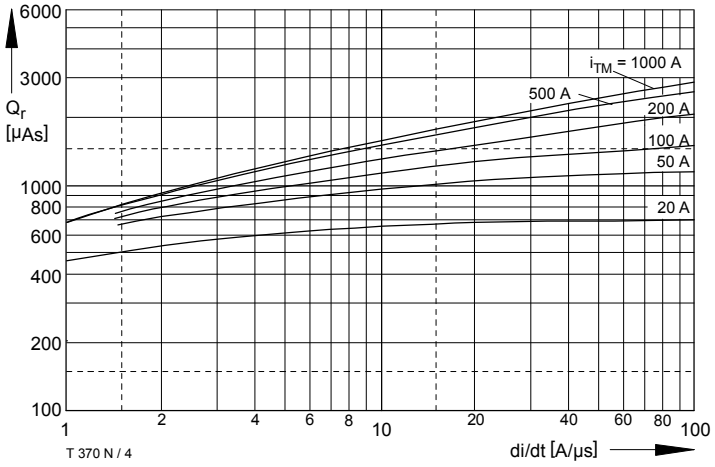


Bild / Fig. 4
Sperrverzögerungsladung / Recovered charge $Q_r = f(di/dt)$
$t_{vj} = t_{vj\ max}$, v_R = 0,5 V_{RRM}, v_{RM} = 0,8 V_{RRM}
Parameter: Durchlaßstrom / On-state current i_{TM}

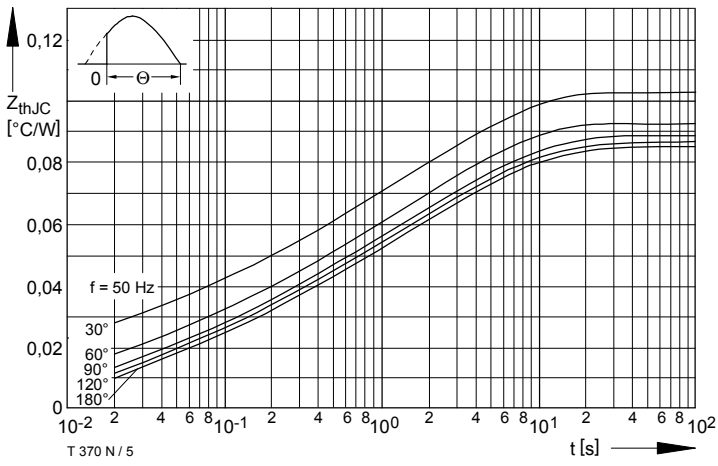


Bild / Fig. 5
Transienter innerer Wärmewiderstand / Transient thermal impedance
$Z_{thJC} = f(t)$
Parameter: Stromflußwinkel / current conduction angle θ

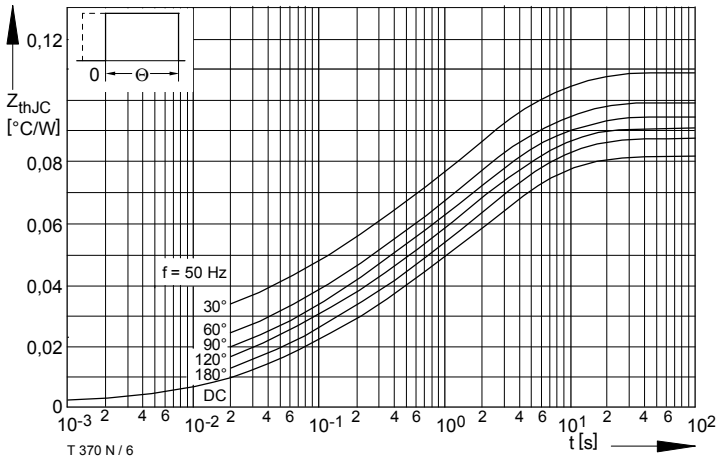


Bild / Fig. 6
Transienter innerer Wärmewiderstand / Transient thermal impedance
$Z_{thJC} = f(t)$
Parameter: Stromflußwinkel / current conduction angle θ

Analytische Elemente des transienten Wärmewiderstandes Z_{thJC} pro Zweig für DC
Analytical elements of transient thermal impedance Z_{thJC} per arm for DC

Pos. n	1	2	3	4	5	6
R_{thn}[°C/W]	0,00035	0,00275	0,0123	0,0225	0,0247	0,0194
τ_n [s]	0,000328	0,0015	0,0379	0,292	1,9	6,75

Analytische Funktion / Analytical function:

$$Z_{thJC} = \sum_{n=1}^{n_{max}} R_{thn} \left(1-e^{-\frac{t}{\tau_n}}\right)$$