9 1 &K 3RZHU (

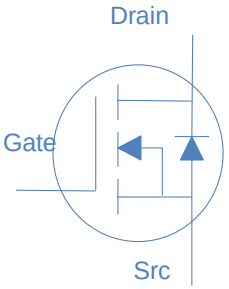
Feature

- High Speed Power Switching
- Enhanced Body diode dv/dt capability
- Enhanced Avalanche Ruggedness
- 100% UIS Tested 100% Rg Tested
- Lead Free, Halogen Free

V_{DS}		60	V
R'6 RQ W	V_{GS}=10V		m :
I' 6LOLFRQ /LPLW		190	A
I' 3DFNDJH /LPLWH		120	A

Application

- Synchronous Rectification in SMPS
- Hard Switching and High Speed Circuit
- DC/DC in Telecoms and Inductrial



TO-247

Part Number	Package	Marking
HGK030N06S	TO-247	GK030N06S

Absolute Maximum Ratings at T_j XQOHVV RWKHUZLVH VSHFLILHG

Parameter	Symbol	&RQGLWLR	Value	Unit
&RQWLQXRXV 'UDLQ &XUUHQW	I_D	6LOLFRQ /LPLWHG T_C	190	A
			134	
&RQWLQXRXV 'UDLQ &XUUHQW		3DFNDJH /LPLWHG T_C	120	
Drain to Source Voltage	V_{DS}	-	60	V
Gate to Source Voltage	V_{GS}	-	±20	V
3XOVHG 'UDLQ &XUUHQW	I_{DM}	-	460	A
$YDODQFKH (QHUJ\ 6LQJOH 3XOVH	E_{AS}	P + $_C$7	320	mJ
3RZHU 'LVVLSDWLRQ	P_D	T_C	214	W
2SHUDWLQJ DQG 6WRUDJH 7HPSHUDWXUH	T_J T_{stg}		-55 to 175	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
7KHUPDO 5HVLVWDQFH -XQFWLRQ $PELHQW	$R_{\theta JA}$	50	:
7KHUPDO 5HVLVWDQFH -XQFWLRQ &DVH	$R_{\theta JC}$		:

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
'UDLQ WR 6RXUFH %UHDNGRZQ 9ROWDJH	V %5 '66	V_{GS} 9 I_D				
		V_{GS}=V_{DS} I_D=250 PA				
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS} 9 V_{DS} 9 T_j 7	-	-	1	PA
		V_{GS} 9 V_{DS} 9 T_j 7	-	-	100	
*DWH WR 6RXUFH /HDNDJH &XUUHQW	I_{GSS}	V_{GS} 9 V_{DS}=0V	-	-	±100	nA
	g_{IV}	V_{DS} 9 I_D=20A	-	60	-	S
Gate Resistance	R_G	V_{GS} 9 V_{DS} 2SHQ I 0+]	-		-	:

D-0.001 Tc 0.001 4 Tf -0.001 Tc 8.64 0 4 295.08 661.68 Tm [CID 404 >>BDC /TT54 21580 10F000 Tw 16.4 -0.024

'\QDPLF &KDUDFWHULVWLFV

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
,QSXW &DSDFLWDQFH	C_{iss}		-	4537	-	
2XWSXW &DSDFLWDQFH	C_{oss}	V_{GS} 9 V_{DS} 9 I 0+]	-	1540	-	S)
5HYHUVH 7UDQVIHU &DSDFLWDQFH	C_{rss}		-	51	-	
7RWDO *DWH &KDUJH	Q_g	9	-	64	-	
*DWH WR 6RXUFH &KDUJH	Q_{gs}	V_{DD} 9 I_D $ V_{GS}=10V	-	18	-	nC
*DWH WR 'UDLQ 0LOOHU &KDUJH	Q_{gd}		-	13	-	
Turn on Delay Time	$t_{d(on)}$		-	15	-	
Rise time	t_r	V_{DD} 9 I_D $ V_{GS} 9	-	11	-	ns
7XUQ RII 'HOD\ 7LPH	$t_{d(off)}$	R_G=10 :	-	54	-	
)DOO 7LPH	t_f		-	17	-	

5HYHUVH 'LRGH &KDUDFWHULVWLFV

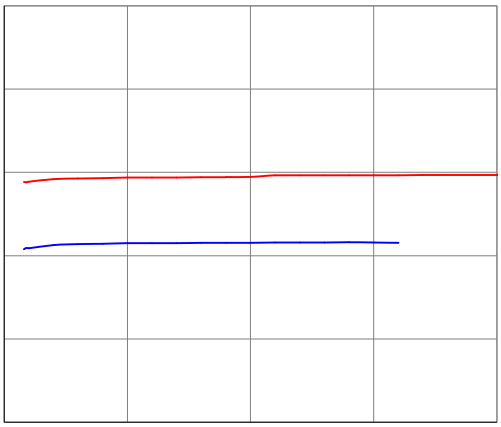
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
'LRGH)RUZDUG 9ROWDJH	V_{SD}	V_{GS} 9 I_F=20A	-			V
Reverse Recovery Time	t_{rr}	V_R 9 I_F $ dI_F/dt P$	-	45	-	ns
5HYHUVH 5HFRYHU\ &KDUJH	Q_{rr}		-	90	-	nC

)LJ 7\SLFDO 2XWSXW &KDUDFWHULVWLFV

)LJXUH 2Q 5HVLVWDQFH YV *DWH 6RXUFH 9ROWD

)LJXUH 2Q 5HVLVWDQFH YV 'UDLQ &XUUHQW

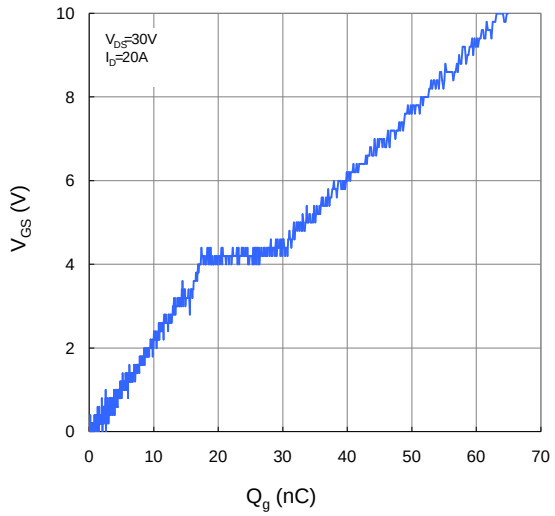
)LJXUH 2Q 5HVLVWDQFH YV -XQFWLR



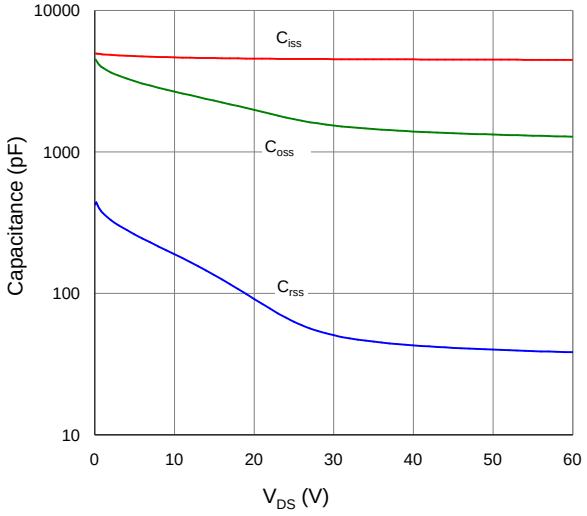
)LJXUH 7\SLFDO 7UDQVIHU &KDUDFWHULVWLFV

)LJXUH 7\SLFDO 6RXUFH 'UDLQ 'LRGH)RUZDUG 9R

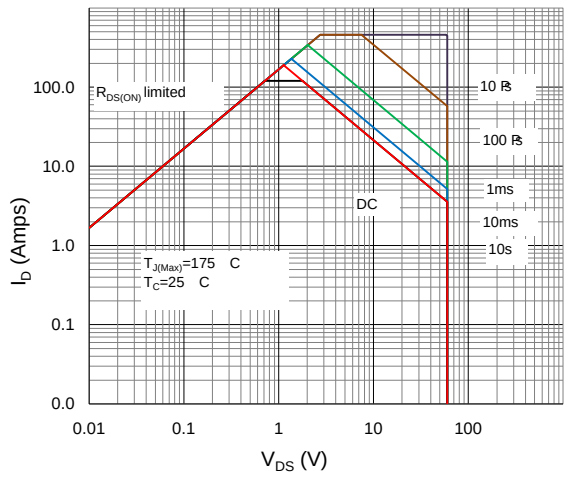
)LJXUH 7\SLFDO *DWH &KDUJH YV *DWH WR 6RXUFH 9ROWDJH



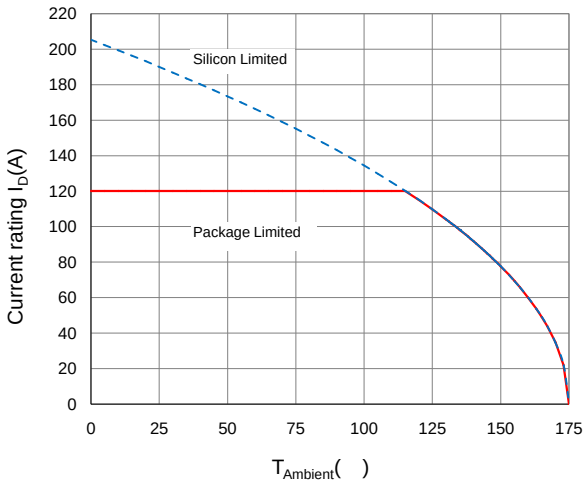
)LJXUH &DSDFLWDQFH YV 'UDLQ WR 6RXUFH 9ROWDJH



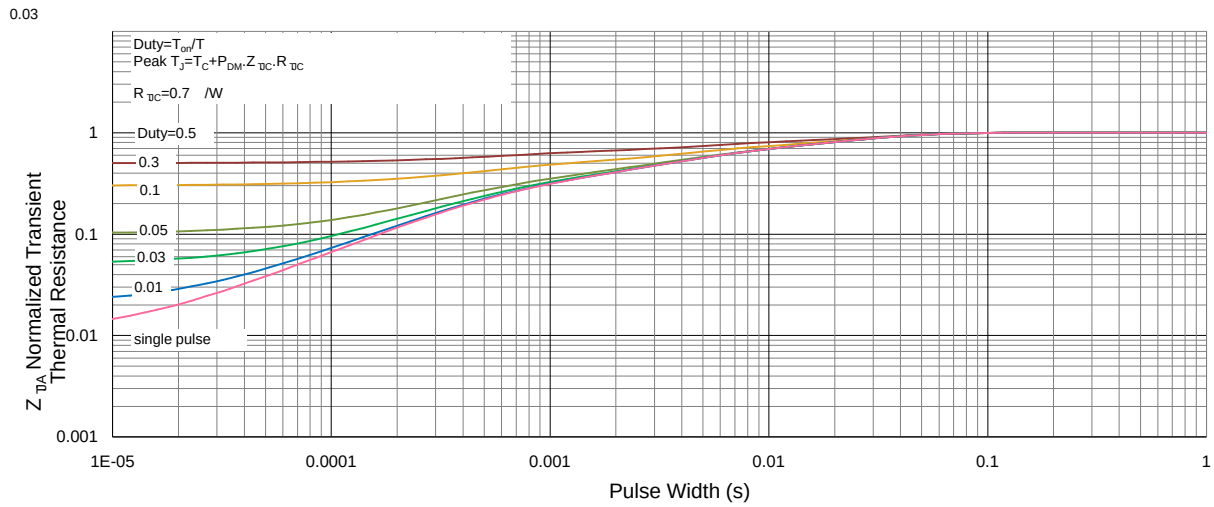
)LJXUH 0D[LPXP 6DIH 2SHUDWLQJ $UHD



)LJXUH 0D[LPXP 'UDLQ &XUUHQW YV &DVH 7HPSH



)LJXUH 1RUPDOL]HG 0D[LPXP 7UDQVLHQW 7KHUPDO ,PSHGDQFH -XQFWLRQ



Package Outline

7 2 O H D G V