

Product Summary

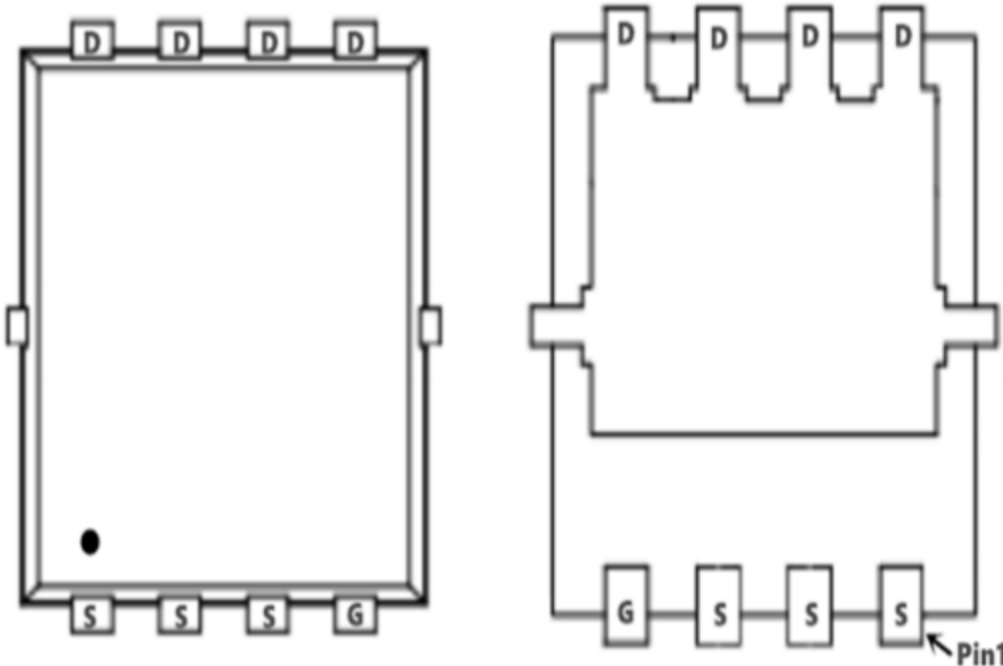
- $V_{DS} = -60V, I_D = -65A$
 $R_{DS(ON)} = 11m\Omega$ (typical) @ $V_{GS} = -10V$
 $R_{DS(ON)} = 13m\Omega$ (typical) @ $V_{GS} = -4.5V$

Application

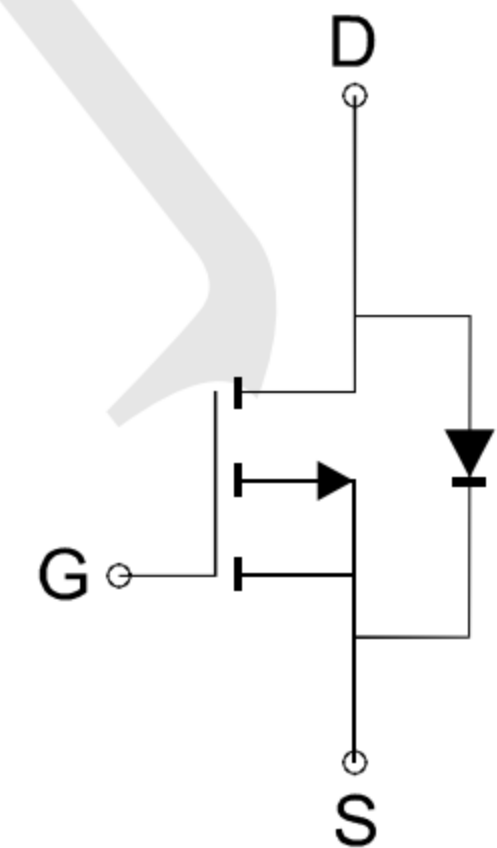
- Load Switch
- Power management in portable/desktop PCs
- DC/DC conversion

Package and Pin Configuration

DFN5*6-8L



Marking:



P-Channel MOSFET

Absolute Maximum Ratings ($T_C = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	-65	A
Drain Current-Continuous($T_C = 100^\circ C$)	$I_D(100^\circ C)$	-49	A
Pulsed Drain Current ^(Note 1)	I_{DM}	-280	A
Maximum Power Dissipation	P_D	110	W
Derating factor		0.88	W/ $^\circ C$
Single pulse avalanche energy ^(Note 5)	E_{AS}	560	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ C$

Thermal Characteristic

Thermal Resistance, Junction-to-Case ^(Note 2)	$R_{\theta JC}$	1.14	$^\circ C/W$
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Electrical Characteristics (T_c=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-60V, V _{GS} =0V	-	-	-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.2	-1.8	-2.4	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-20A	-	11	15	mΩ
		V _{GS} =-4.5V, I _D =-20A	-	13	16	mΩ
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-20A	-	25	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C _{iss}	V _{DS} =-30V, V _{GS} =0V, F=1.0MHz	-	5604	-	PF
Output Capacitance	C _{oss}		-	356	-	PF
Reverse Transfer Capacitance	C _{rss}		-	265	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-30V, R _L =1.5Ω, V _{GS} =-10V, R _G =3Ω	-	18	-	nS
Turn-on Rise Time	t _r		-	20	-	nS
Turn-Off Delay Time	t _{d(off)}		-	55	-	nS
Turn-Off Fall Time	t _f		-	35	-	nS
Total Gate Charge	Q _g	V _{DS} =-30, I _D =-20A, V _{GS} =-10V	-	62.1	-	nC
Gate-Source Charge	Q _{gs}		-	9.3	-	nC
Gate-Drain Charge	Q _{gd}		-	16.8	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} =0V, I _S =-20A	-	-	-1.2	V
Diode Forward Current (Note 2)	I _S		-	-	-65	A
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = - 20A	-	49	-	nS
Reverse Recovery Charge	Q _{rr}	di/dt = -100A/μs (Note3)	-	71	-	nC



Typical Electrical and Thermal Characteristics (Curves)

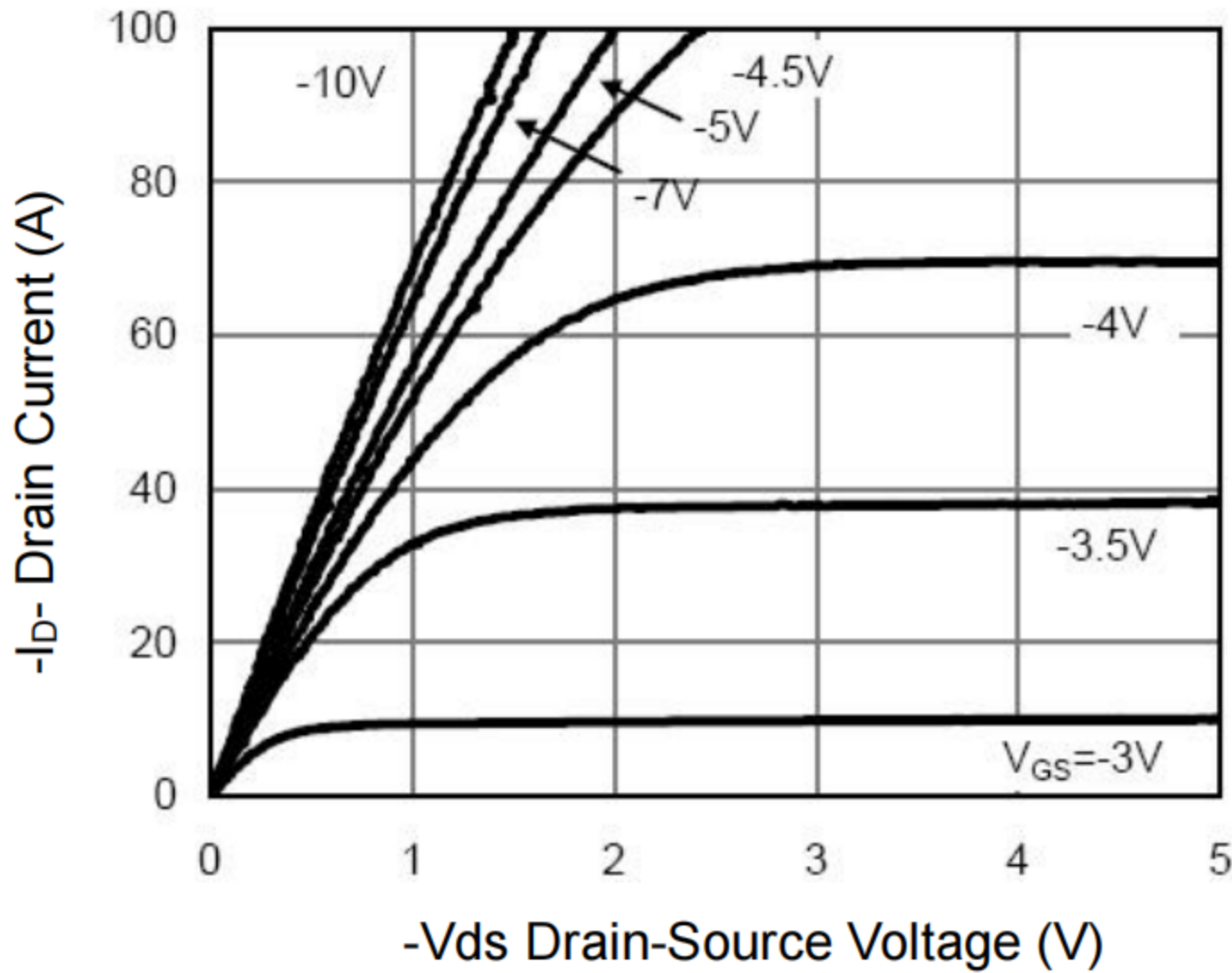


Figure 1 Output Characteristics

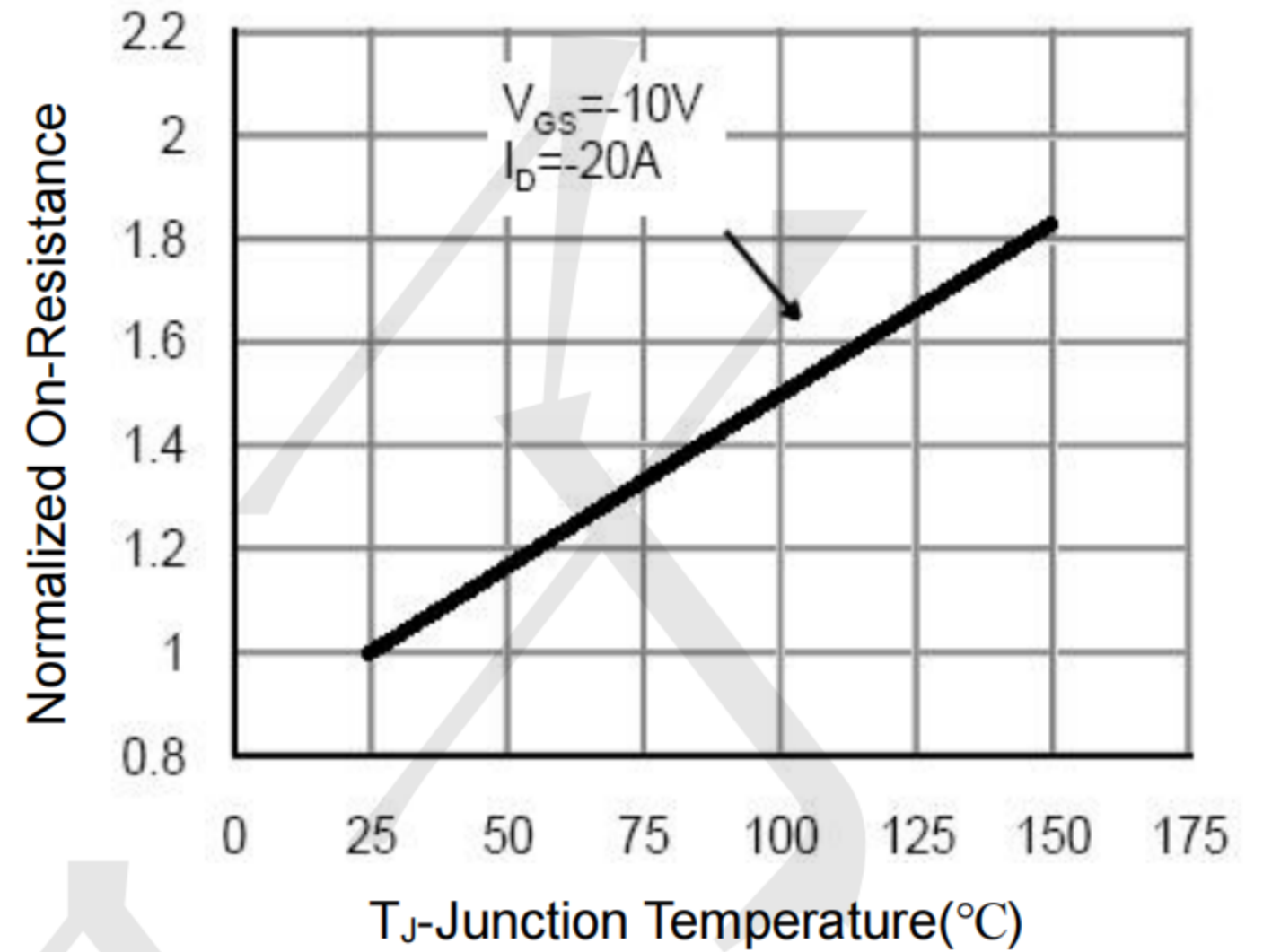


Figure 4 $R_{ds(on)}$ -Junction Temperature

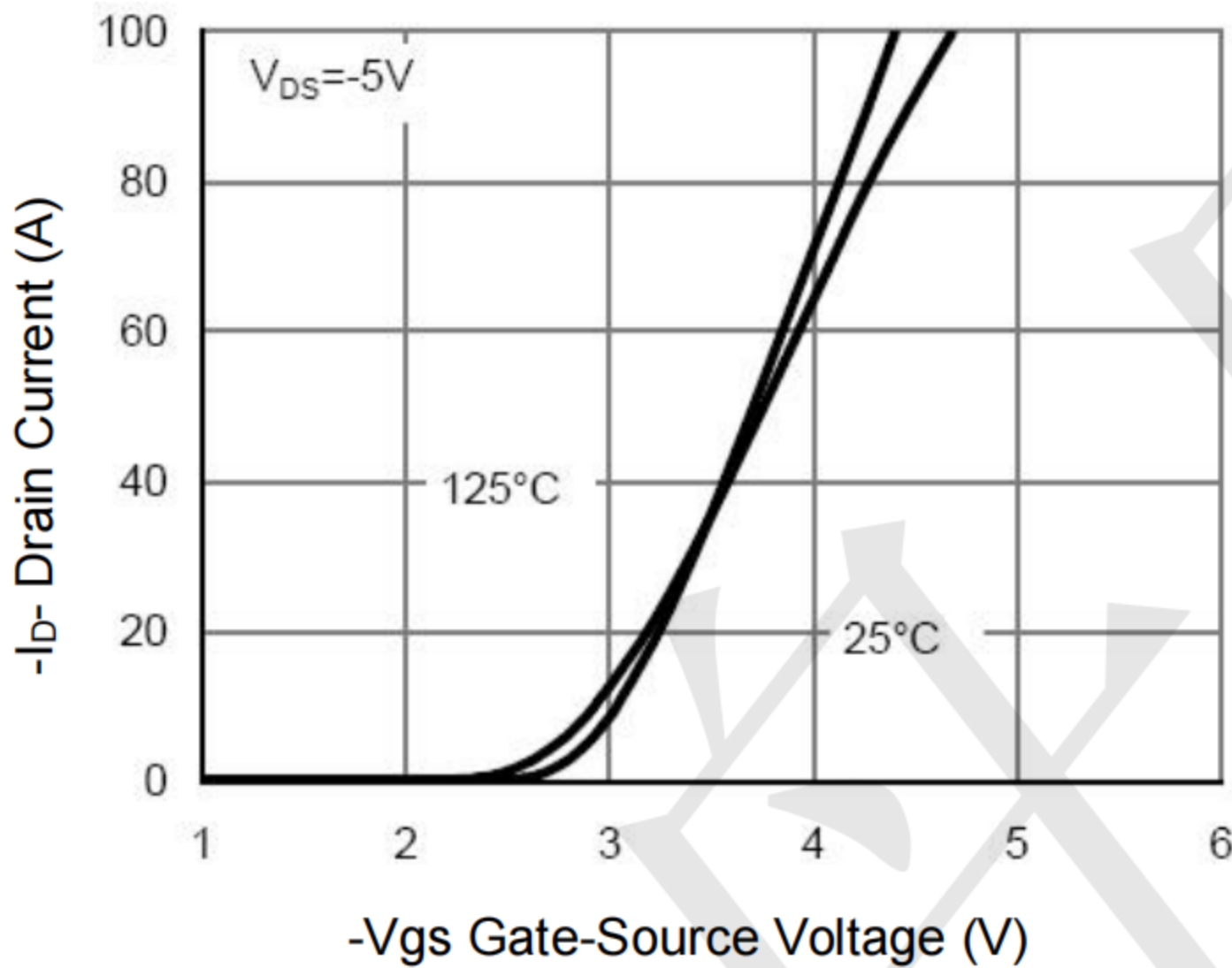


Figure 2 Transfer Characteristics

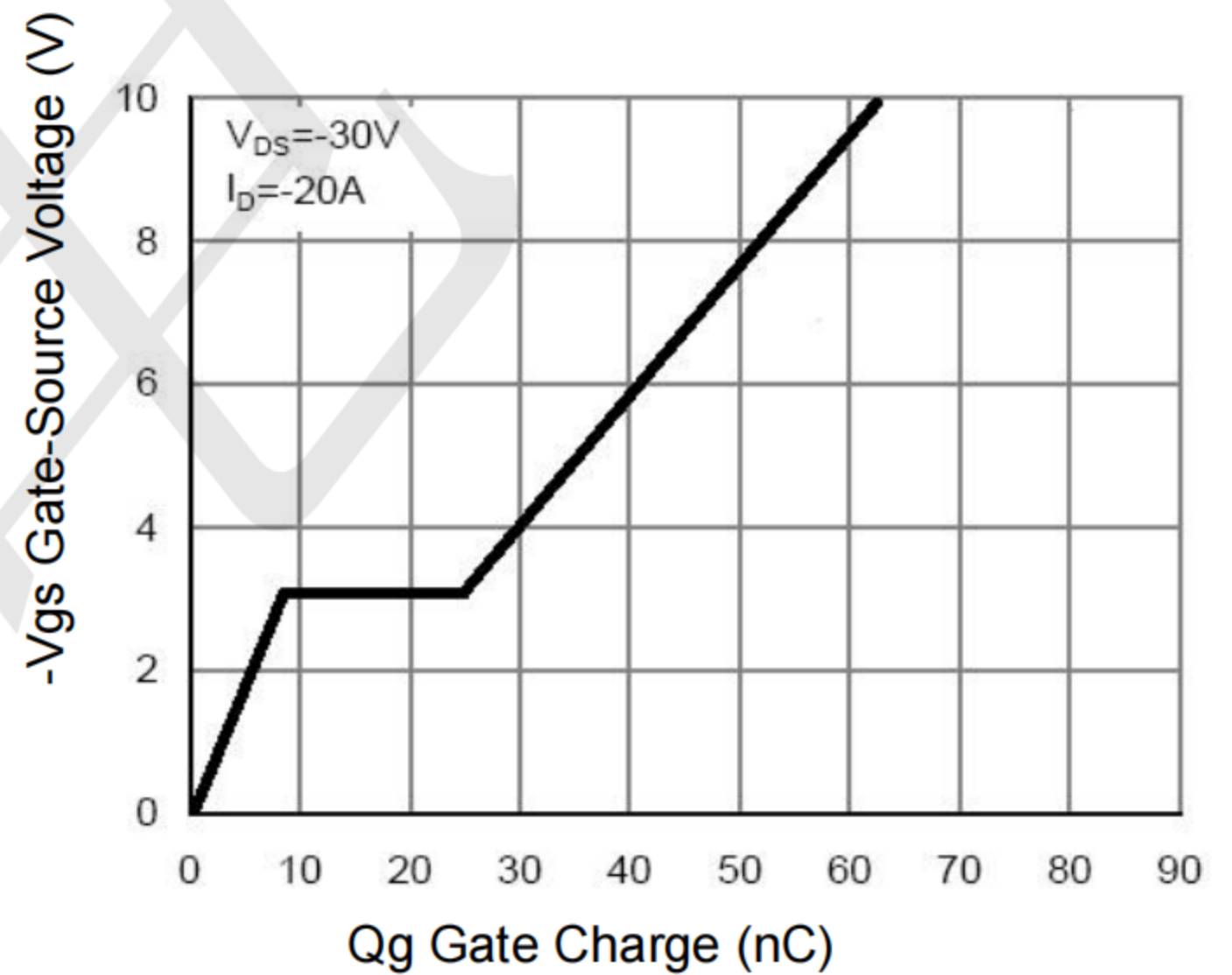


Figure 5 Gate Charge

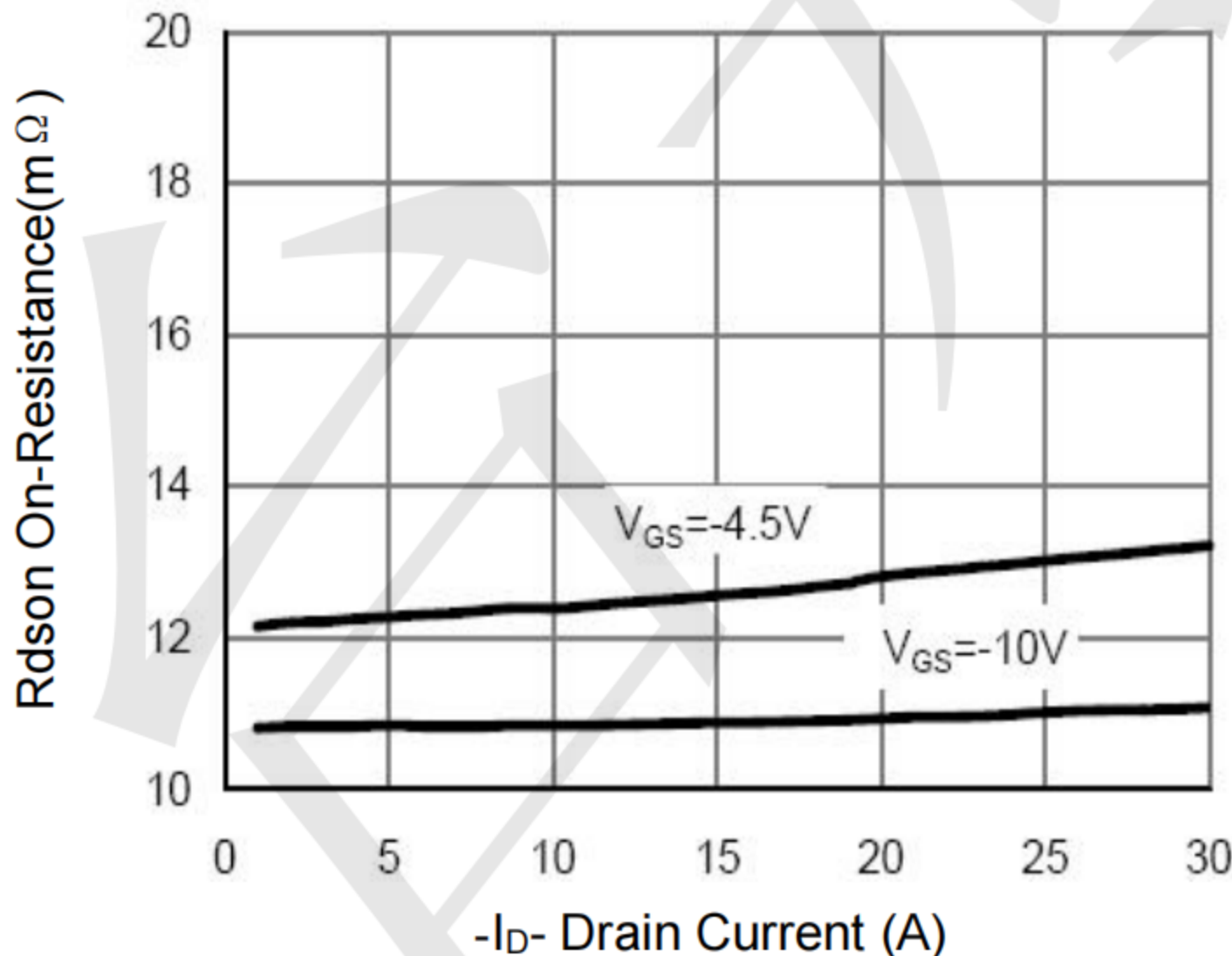


Figure 3 $R_{ds(on)}$ - Drain Current

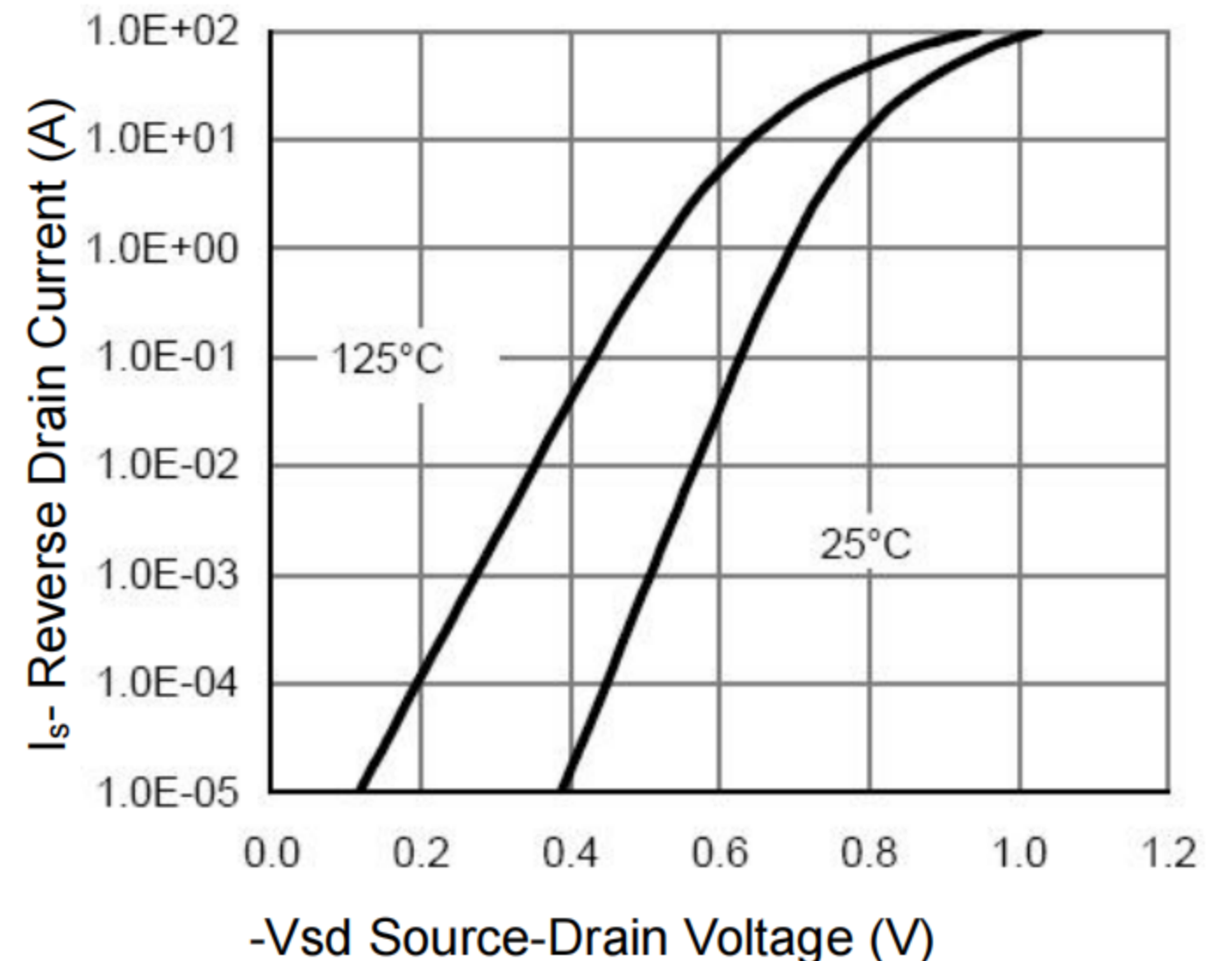


Figure 6 Source- Drain Diode Forward

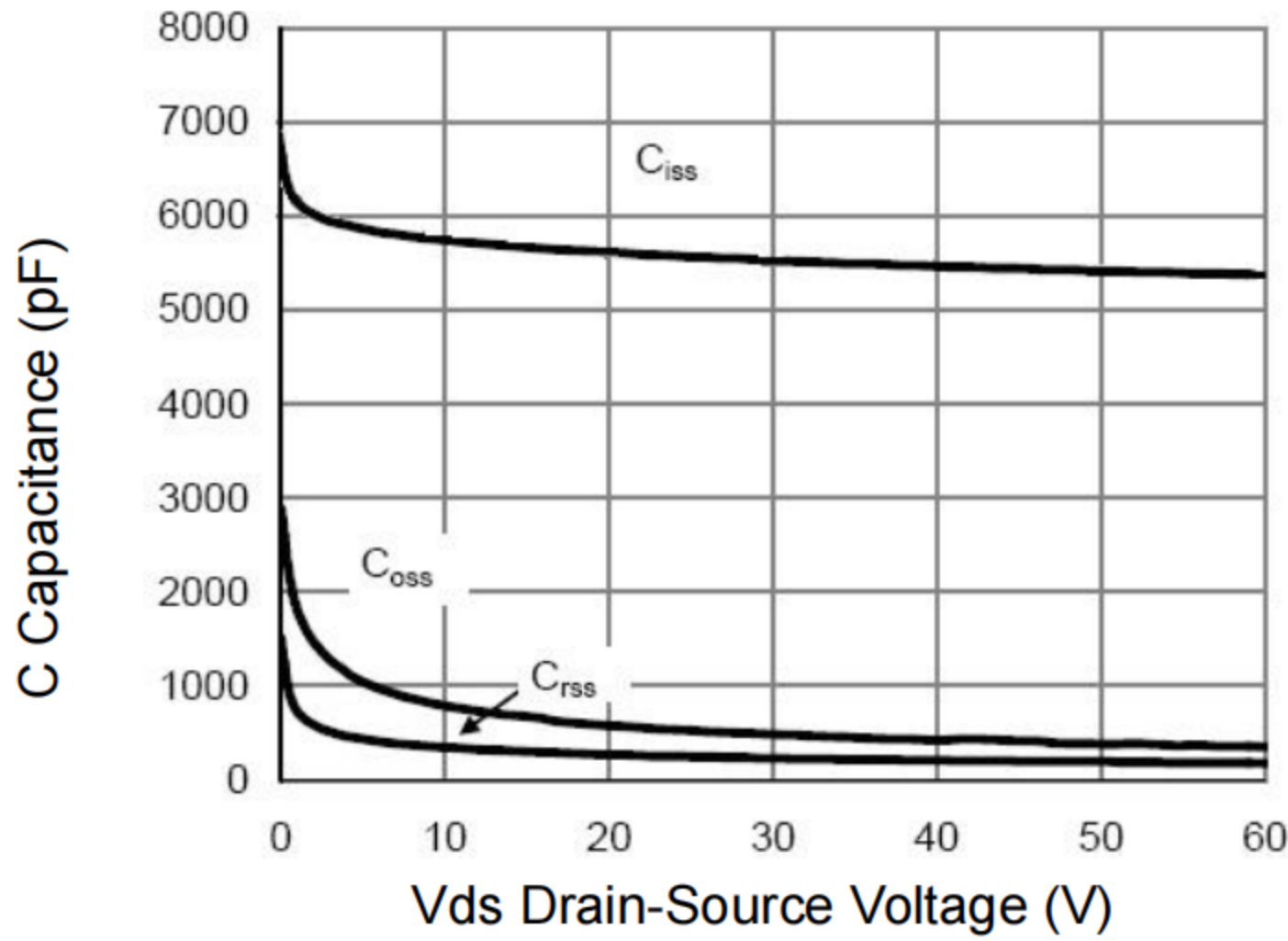


Figure 7 Capacitance vs Vds

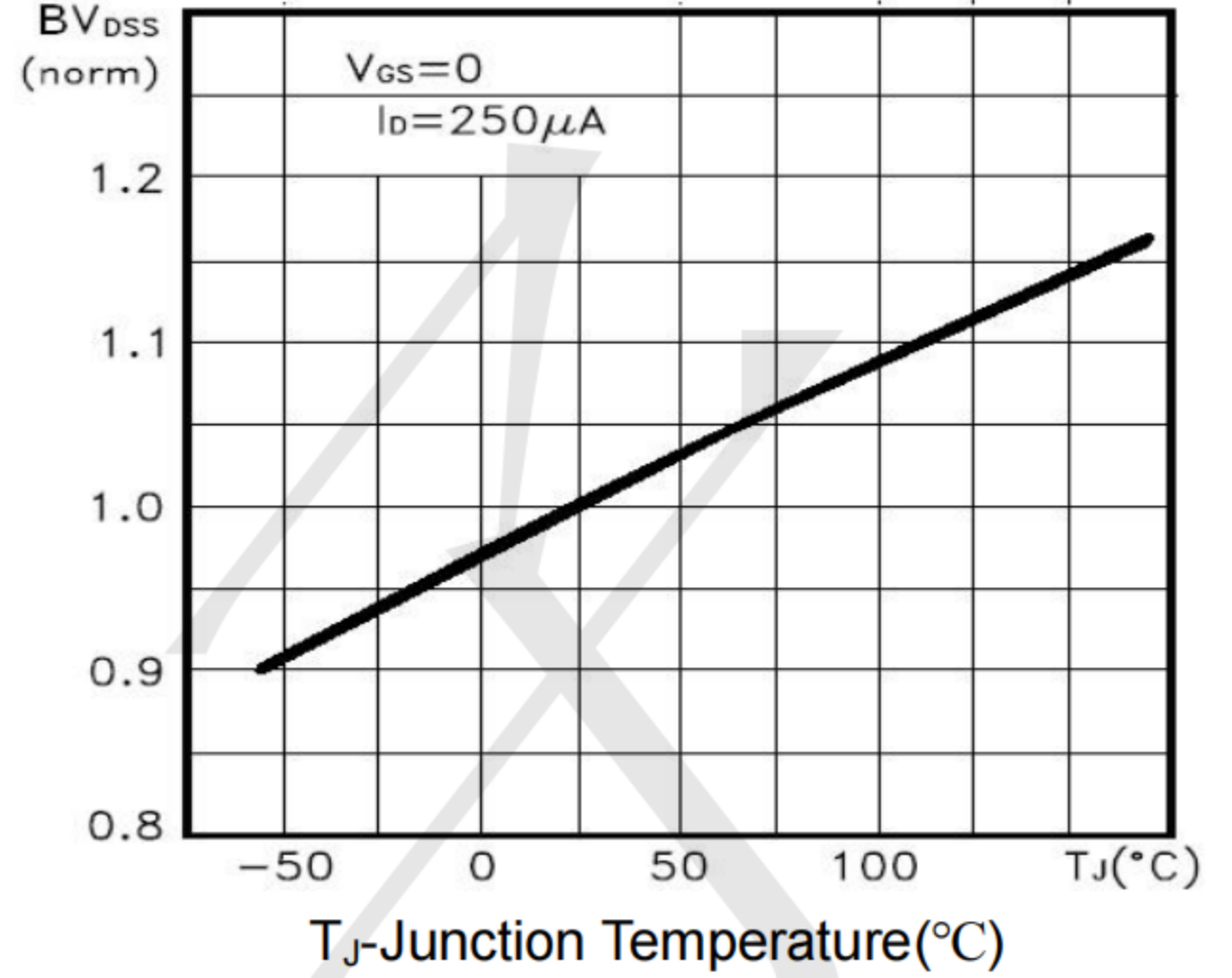


Figure 9 BV_{DSS} vs Junction Temperature

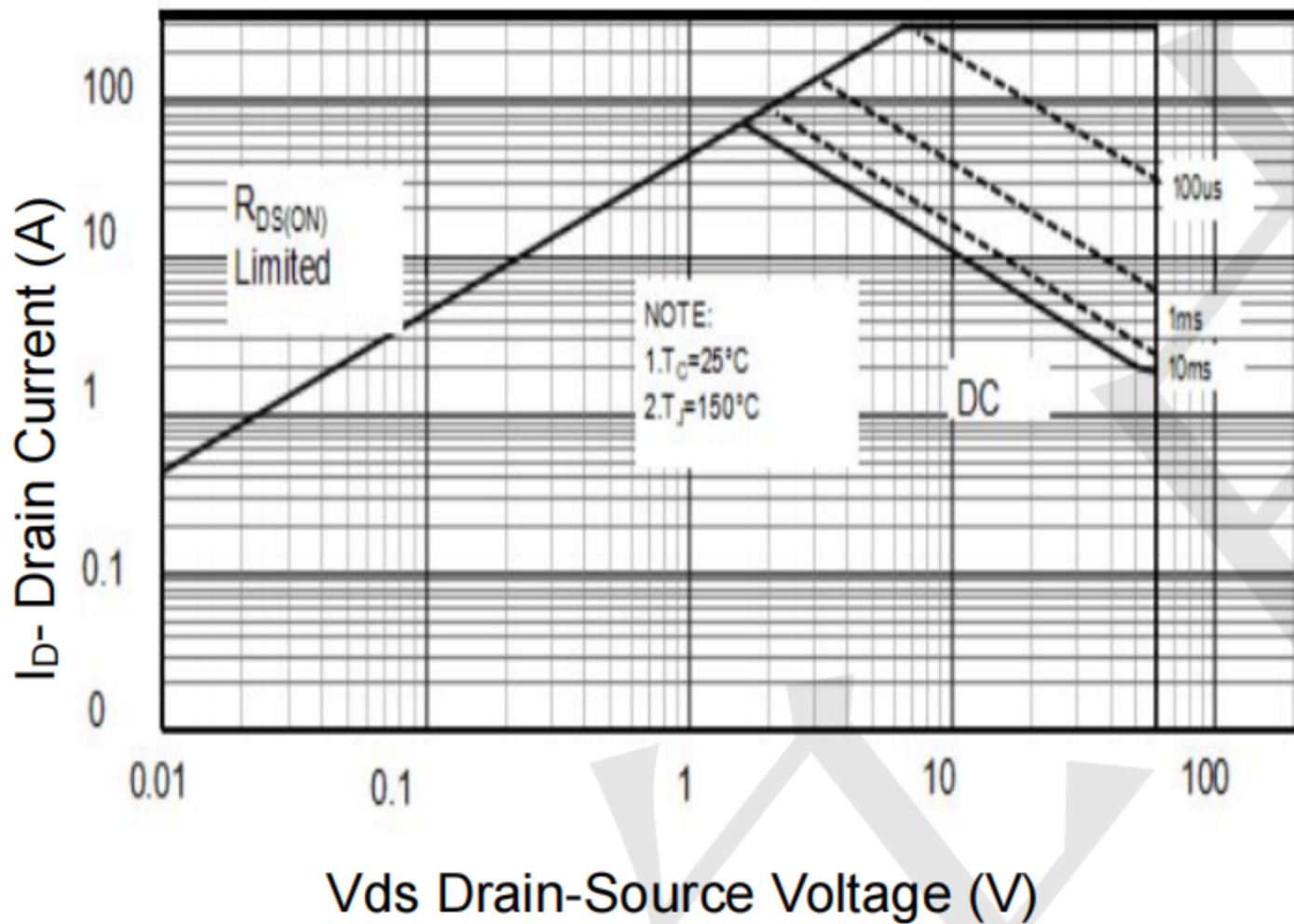


Figure 8 Safe Operation Area

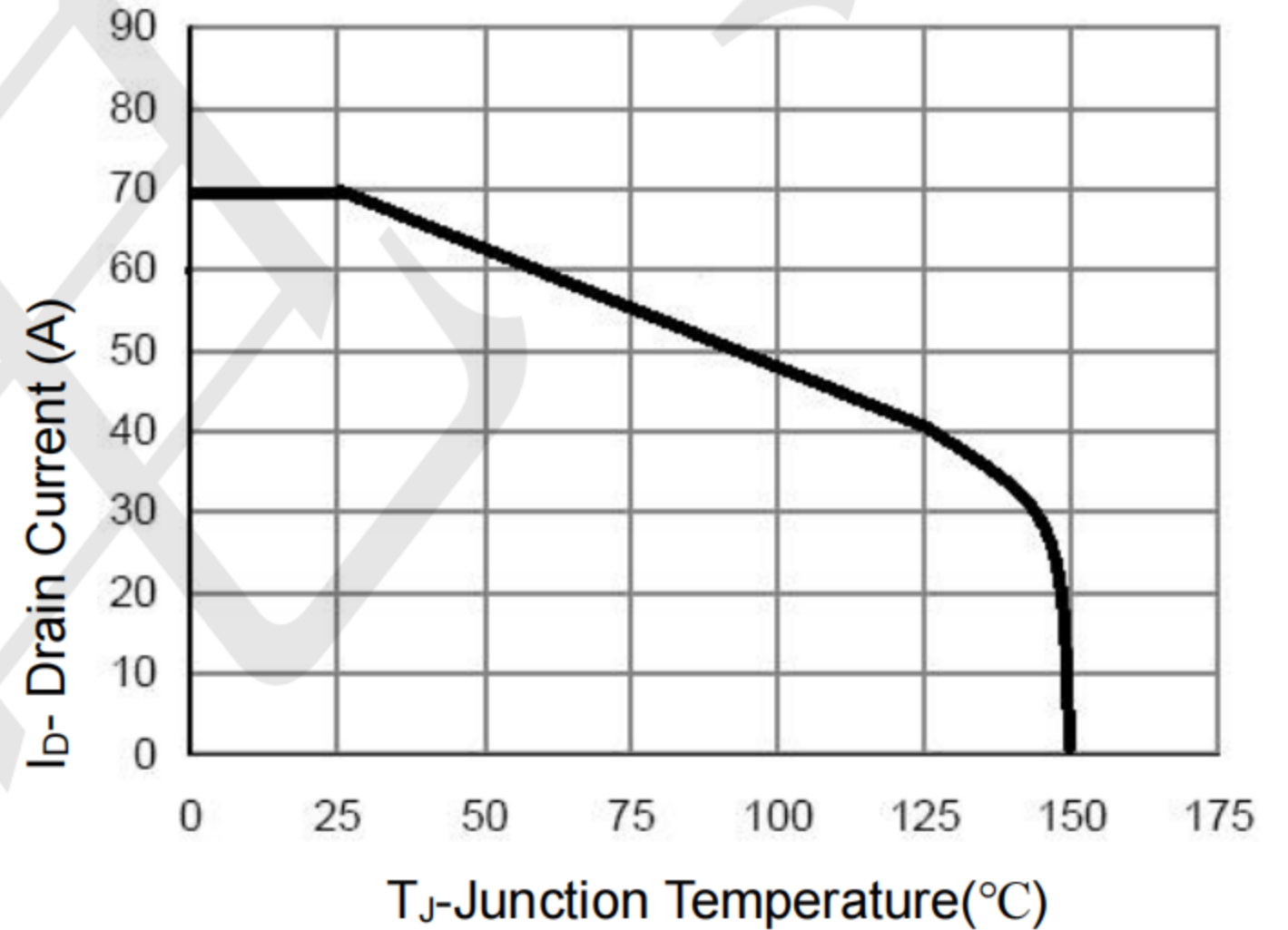


Figure 10 ID Current De-rating

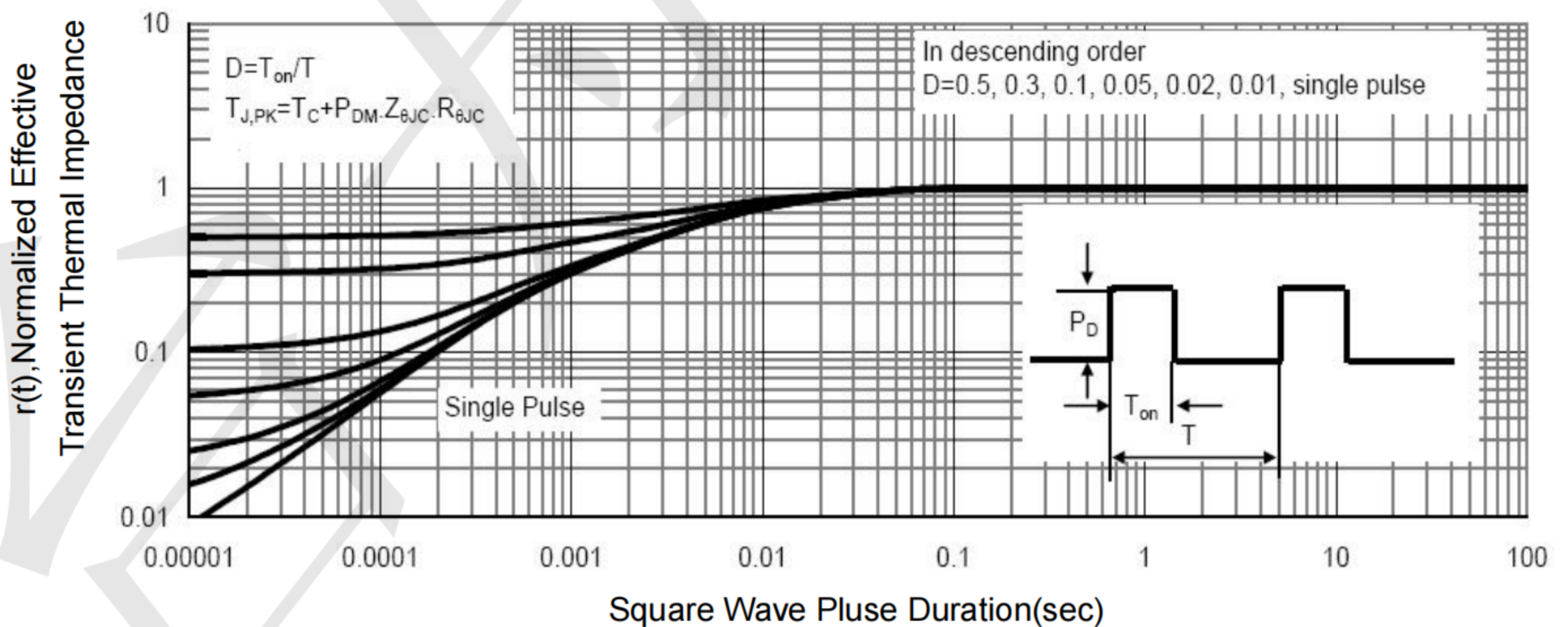


Figure 11 Normalized Maximum Transient Thermal Impedance



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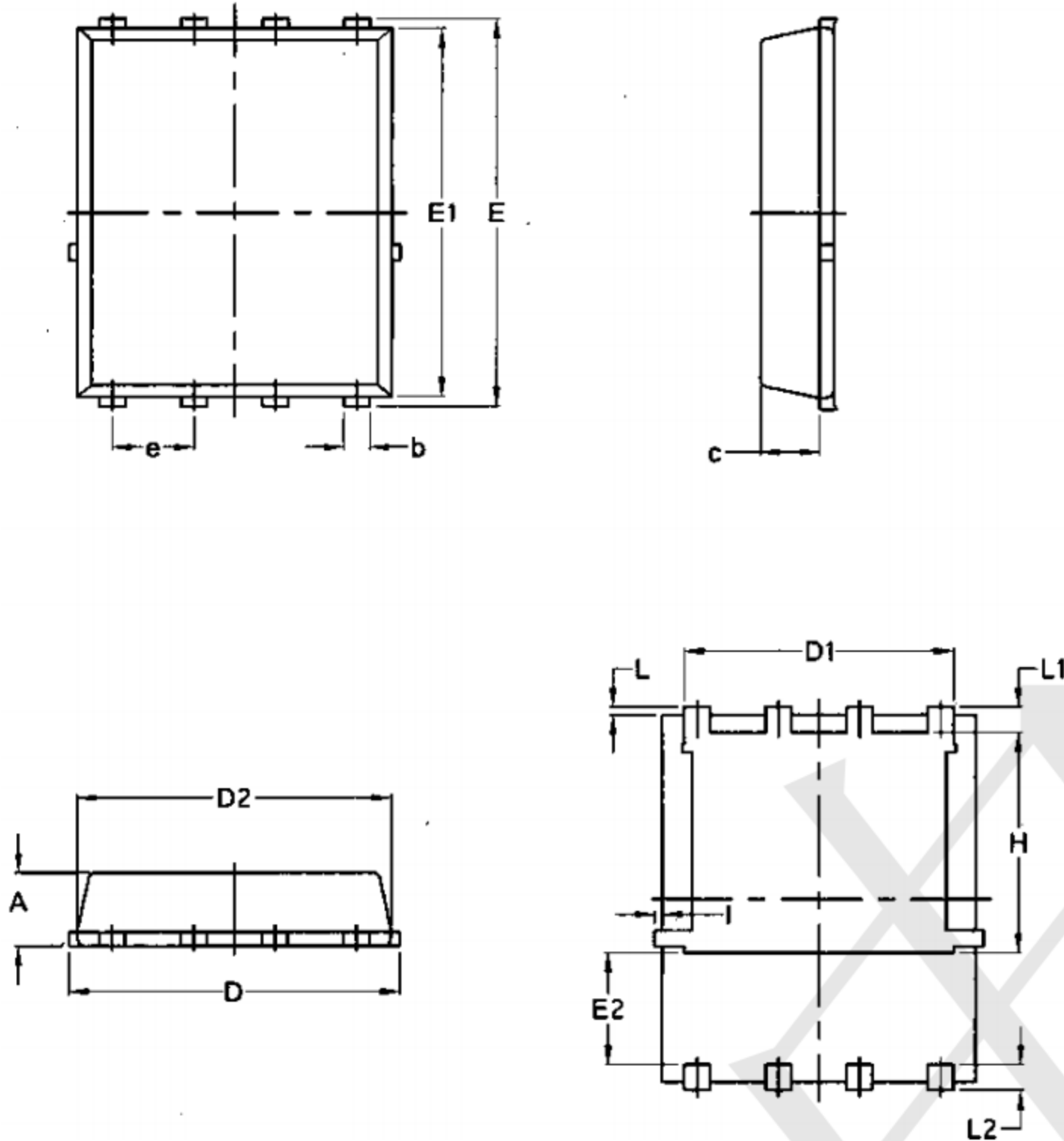
—台丹电子—

TPSTL42P6LLF6

P-Channel Enhancement Mode Power MOSFET

www.sot23.com.tw

Package Outline Dimensions DFN5*6-8L



Symbol	Common			
	mm		Inch	
	Min	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070

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