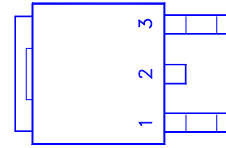
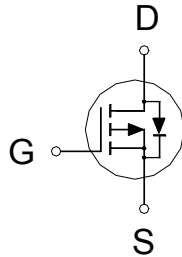


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-100V	60m Ω	-20A



1. GATE
2. DRAIN
3. SOURCE

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	-100	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25^\circ\text{C}$	I_D	-20	A
	$T_C = 100^\circ\text{C}$		-12	
Pulsed Drain Current ¹		I_{DM}	-60	
Avalanche Current		I_{AS}	-54	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	149	mJ
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	50	W
	$T_C = 100^\circ\text{C}$		20	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		2.5	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		75	$^\circ\text{C} / \text{W}$

¹Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, Unless Otherwise Noted)

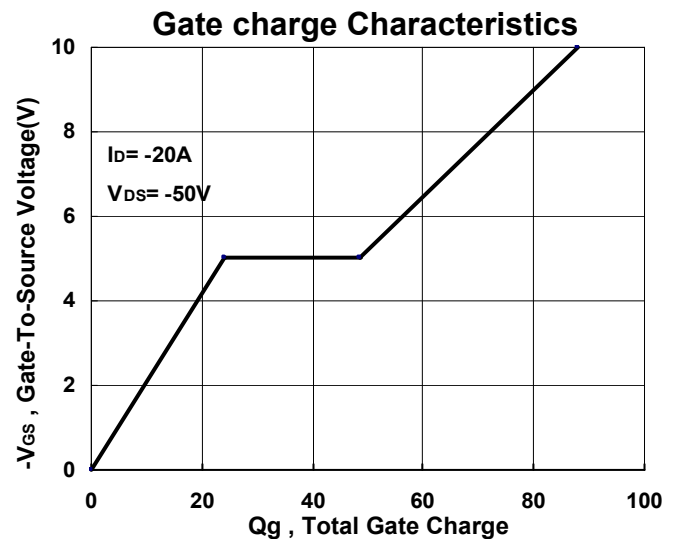
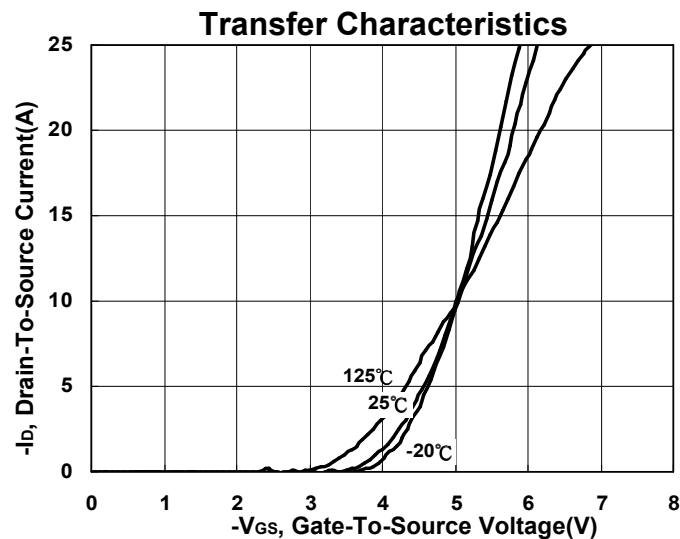
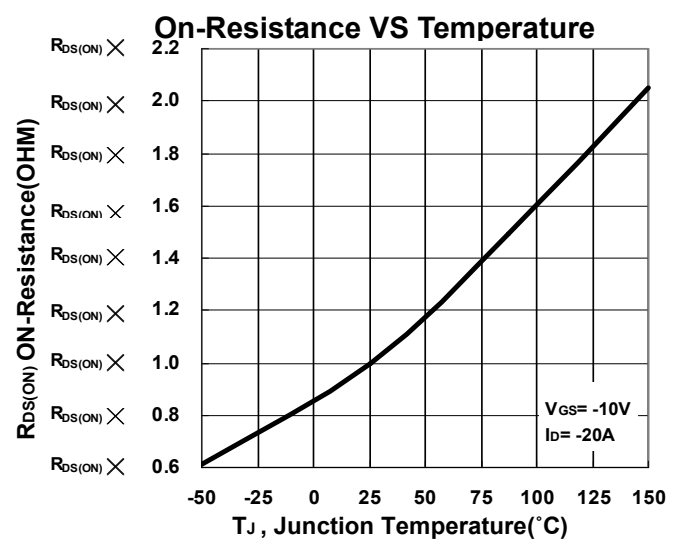
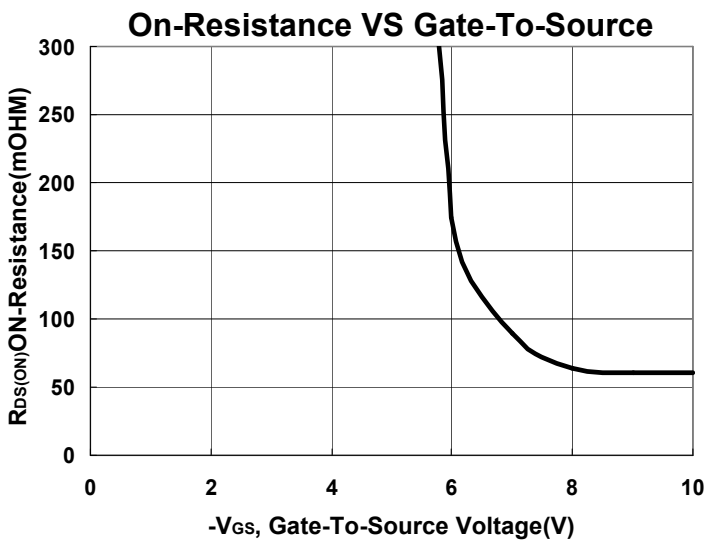
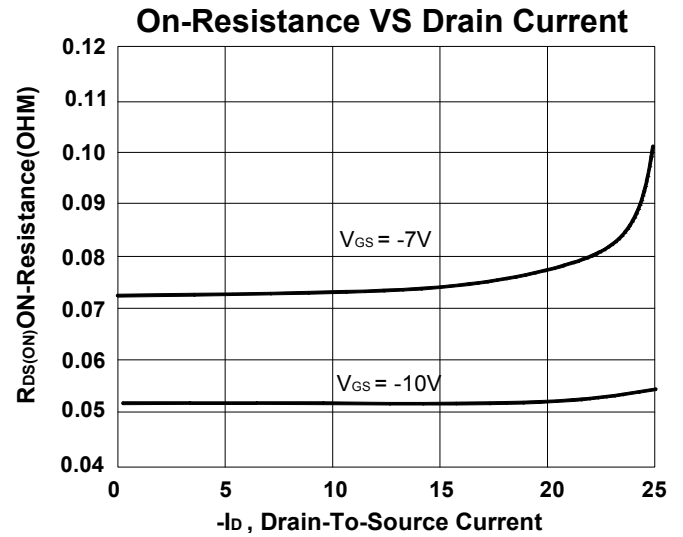
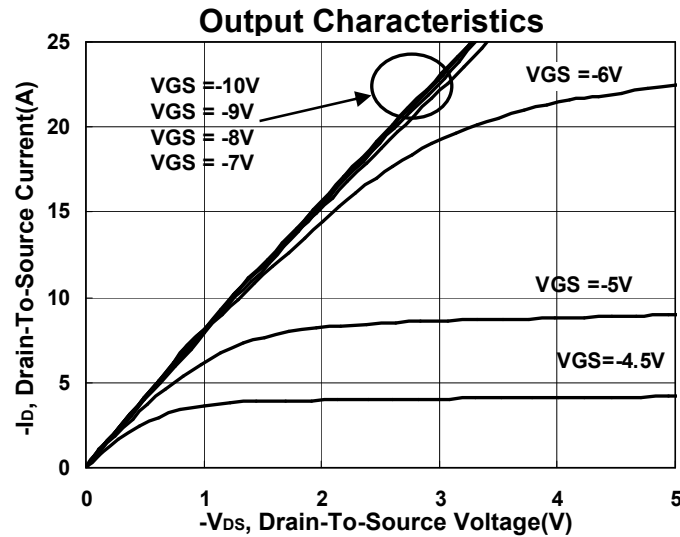
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-100			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.5	-2.7	-4	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 250	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -80V, V_{GS} = 0V$			1	μA
		$V_{DS} = -80V, V_{GS} = 0V, T_J = 125^\circ C$			10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -10V$	-60			A

Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = -7V, I _D = -18A		53	72	mΩ
		V _{GS} = -10V, I _D = -20A		51	60	
Forward Transconductance ¹	g _{fs}	V _{DS} = -5V, I _D = -20A		35		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -50V, f = 1MHz		5520		pF
Output Capacitance	C _{oss}			315		
Reverse Transfer Capacitance	C _{rss}			193		
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		4.6		Ω
Total Gate Charge ²	Q _g	V _{DS} = 0.5V _{(BR)DSS} , V _{GS} = -10V, I _D = -20A		92		nC
Gate-Source Charge ²	Q _{gs}			24		
Gate-Drain Charge ²	Q _{gd}			25		
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = -20V, I _D ≅ -1A, V _{GS} = -10V, R _{GS} = 6 Ω		20		nS
Rise Time ²	t _r			25		
Turn-Off Delay Time ²	t _{d(off)}			120		
Fall Time ²	t _f			125		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _J = 25 °C)						
Continuous Current	I _S				-20	A
Forward Voltage ¹	V _{SD}	I _F = -20A, V _{GS} = 0V			-1.3	V
Reverse Recovery Time	t _{rr}	I _F = -20A, dI _F /dt = 100A / μS		84.3		nS
Reverse Recovery Charge	Q _{rr}			256		nC

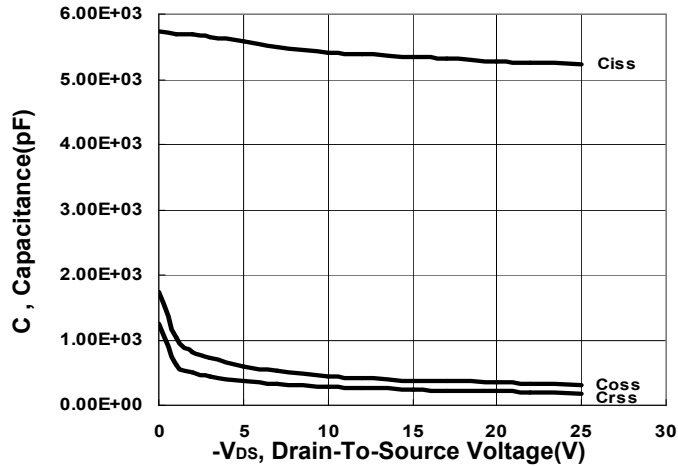
¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

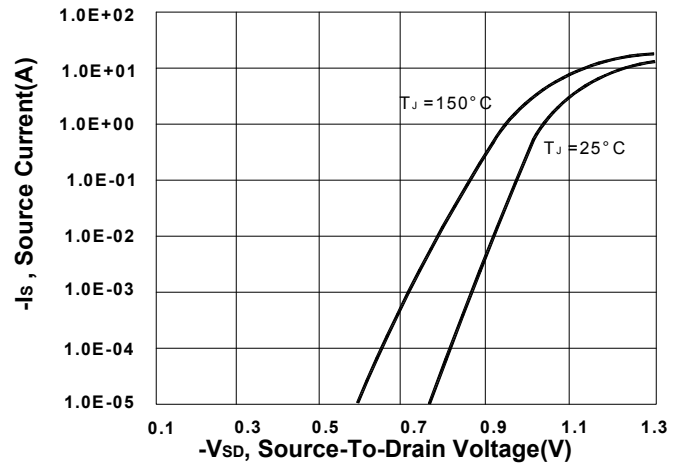
REMARK: THE PRODUCT MARKED WITH "P6010DDG", DATE CODE or LOT #



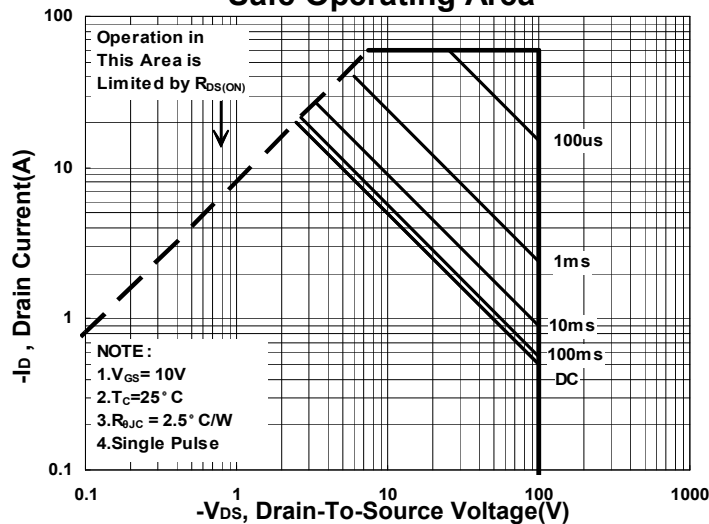
Capacitance Characteristic



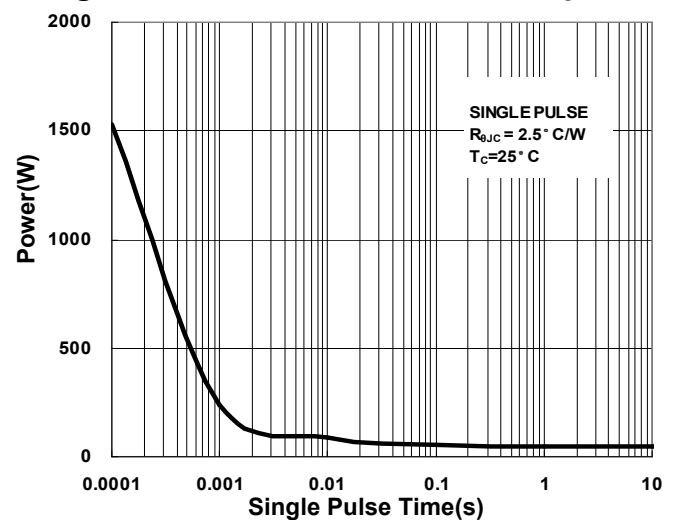
Body Diode Forward Voltage VS Source current



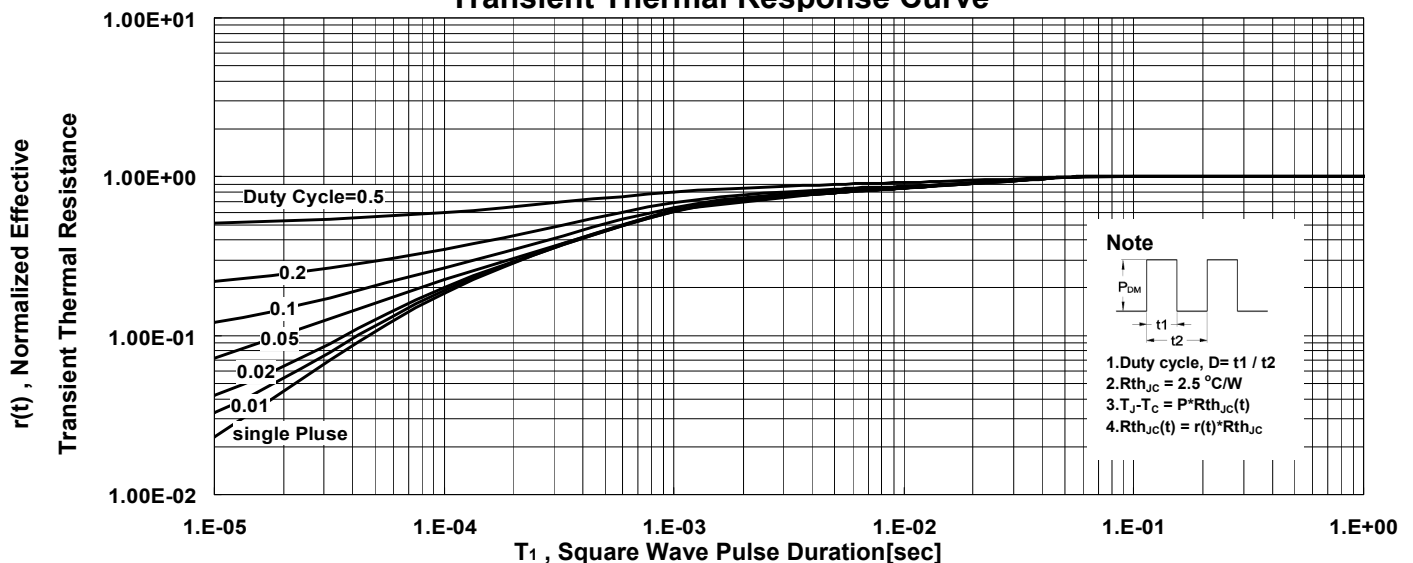
Safe Operating Area



Single Pulse Maximum Power Dissipation



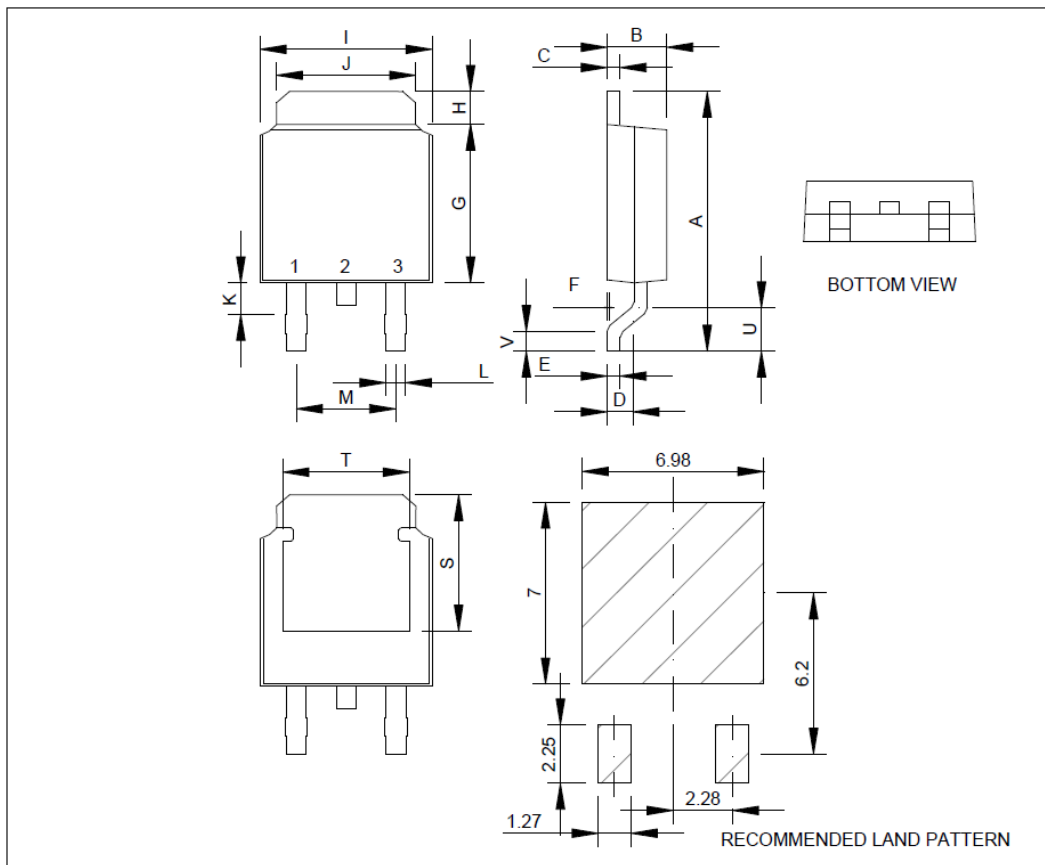
Transient Thermal Response Curve



Package Dimension

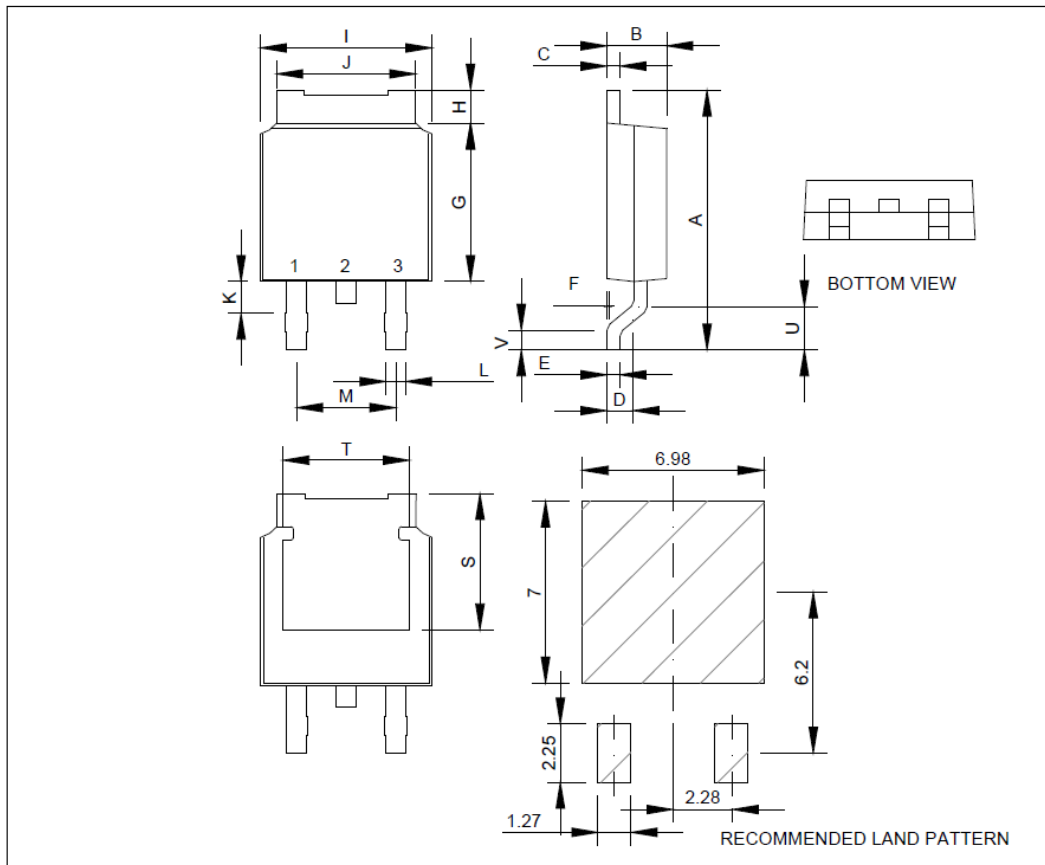
TO-252 (DPAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	9.2		10.2	J	4.8		5.5
B	2.1		2.5	K	0.5		1.1
C	0.4		0.6	L	0.30		0.889
D	1.1		1.3	M	4.58		4.8
E		0.508		S	4.57		5.515
F	0		0.3	T	3.81		5.0
G	5.3		6.2	U	1.4		1.77
H	1.1		1.7	V	0.86		1.5
I	6.3		6.8				



TO-252 (DPAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	8.9	9.5	10.4	J	5.04	5.34	5.64
B	2.2	2.3	2.4	K	0.6		1.0
C	0.4	0.5	0.6	L	0.66	0.76	0.86
D	0.82	1.02	1.22	M	4.372	4.572	4.772
E	0.4	0.5	0.6	S	5.25		
F	0		0.1	T	4.7		5.24
G	5.9	6.1	6.3	U	1.34		1.7
H	0.5		1.25	V	0.55		0.95
I	6.4	6.6	6.8				



TO-252 (DPAK) MECHANICAL DATA all

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	9.65		10.41	J	5.21		5.46
B	2.19		2.38	K	0.64		1.01
C	0.46		0.64	L	0.64		0.89
E	0.51			M		4.58	
F			0.13	S	5.21		
G	5.97		6.22	T	4.83		
H	0.89		1.27	U	1.4		1.78
I	6.35		6.73	V	0.75		1.00

