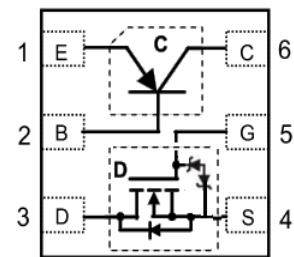
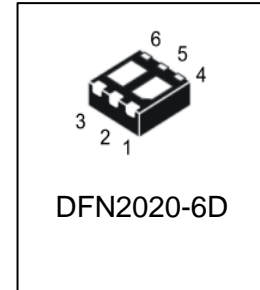


LRC6N33YT1G

General Purpose Transistors with Power MOSFET

1. FEATURES

- ESD Protected:1500V
- High current capacity in compact package.
- Epitaxial planar type.
- Low threshold voltage ($V_{GS(th)}$: 0.9V...1.5V) makes it ideal for low voltage applications.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.



2. APPLICATIONS

- Charging circuit
- Other power management in portable equipments

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LRC6N33YT1G	2N	3000/Tape&Reel

4. MAXIMUM RATINGS($T_a = 25^\circ\text{C}$)

Parameter(N MOSFET)	Symbol	Limits	Unit
Drain-Source Voltage	V_{DSS}	50	Vdc
Gate-to-Source Voltage – Continuous	V_{GS}	± 20	Vdc
Drain Current			
– Continuous $T_A = 25^\circ\text{C}$	I_D	200	mAdc
– Pulsed ($t_p \leq 10\mu\text{s}$)	I_{DM}	800	

Parameter(PNP TRANSISTORS)	Symbol	Limits	Unit
Collector-Emitter Voltage	V_{CEO}	-25	V
Collector-Base Voltage	V_{CBO}	-40	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-1500	mAdc
Base Current	I_B	-200	mA

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Junction-to-Ambient – Steady State (Note 1)	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	T_J, T_{stg}	-55 ~ +150	$^\circ\text{C}$

1. FR-4 = 1.0×0.75×0.062 in.

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

N MOSFET

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain–Source Breakdown Voltage (VGS = 0, ID = 250μAdc)	VBRDSS	50	-	-	Vdc
Zero Gate Voltage Drain Current (VGS = 0, VDS = 25 Vdc) (VGS = 0, VDS = 50 Vdc)	IDSS	-	-	0.1 0.5	μAdc
Gate–Body Leakage Current, Forward (VGS = 20 Vdc)	IGSSF	-	-	10.0	μAdc
Gate–Body Leakage Current, Reverse (VGS = - 20 Vdc)	IGSSR	-	-	-10	μAdc

ON CHARACTERISTICS (Note 2)

Gate Threshold Voltage (VDS = VGS, ID = 1.0mAdc)	VGS(th)	0.9	-	1.5	Vdc
Static Drain–Source On–State Resistance (VGS = 2.75 Vdc, ID < 200 mAdc, TA = -40°C ~ +85°C) (VGS = 5.0 Vdc, ID = 200 mAdc)	RDS(on)	-	5.6	10 3.5	Ohms
Forward Transconductance (VDS = 25 Vdc, ID = 200 mAdc, f = 1.0 kHz)	gfs	100	-	-	mS

DYNAMIC CHARACTERISTICS

Input Capacitance (VDS = 25 Vdc, VGS = 0, f = 1.0 MHz)	Ciss	-	22.8	-	pF
Output Capacitance (VDS = 25 Vdc, VGS = 0, f = 1.0 MHz)	Coss	-	3.5	-	pF
Reverse Transfer Capacitance (VDS = 25 Vdc, VGS = 0, f = 1.0 MHz)	Crss	-	2.9	-	pF

SWITCHING CHARACTERISTICS

Turn-On Delay Time	(VDD = 30 Vdc , VGEN = 10 V, RG =25Ω ,RL =60 Ω, ID =500 mAdc)	td(on)	-	3.8	-	ns
Turn-Off Delay Time		td(off)	-	19	-	

2.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.

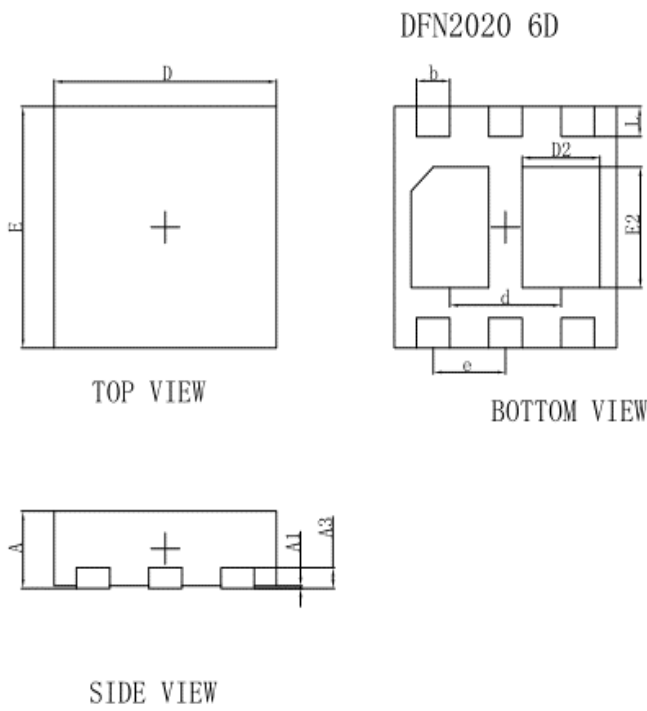
6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)(Con.)
PNP TRANSISTORS
OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Collector-Emitter Breakdown Voltage (IC =-1.0mA)	V(BR)CEO	-25	-	-	V
Emitter-Base Breakdown Voltage (IE =-100μA)	V(BR)EBO	-5	-	-	V
Collector-Base Breakdown Voltage (IC =-100μA)	V(BR)CBO	-40	-	-	V
Collector Cutoff Current (VCB =-35V)	ICBO	-	-	-150	nA
Emitter Cutoff Current (VEB =-4V)	IEBO	-	-	-150	nA

ON CHARACTERISTICS (Note 3)

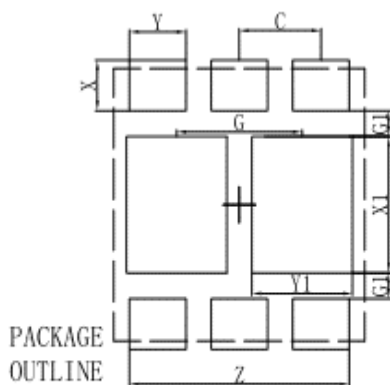
DC Current Gain (IC =-500mA, VCE =-2V)	HFE	60	-	135	
Collector-Emitter Saturation Voltage (IC =-800mA, IB =-80mA)	VCE(S)	-	-	-0.5	V

7. OUTLINE AND DIMENSIONS



DFN2020-6D			
Dim	Min	Typ	Max
D	1.95	2.00	2.05
E	1.95	2.00	2.05
e	-	0.65	-
L	0.20	0.25	0.30
b	0.25	0.30	0.35
d	-	1.00	-
A	0.60	0.65	0.70
A1	0	0.02	0.05
A3	-	0.152	-
E2	0.95	1.00	1.05
D2	0.65	0.70	0.75
All Dimensions in mm			

8. SOLDERING FOOTPRINT



Dimensions	(mm)
X	0.37
Y	0.45
X1	1.00
Y1	0.80
C	0.65
G	1.00
G1	0.19
Z	1.75
C	0.65

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